THE EFFECT OF TWO ORIENTING TASKS ON RESPONSES, RECOGNITION MEMORY, AND RATINGS OF ACCEPTANCE FOR NONOBJECTIVE PAINTINGS

By

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To my mother and Joe,
without whose love and support
this would not have been possible.

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To determine the effects of two orienting tasks on ① recognition memory and ② aesthetic judgment for 15 nonobjective paintings, viewed for 45 seconds each, 32 college art majors and 32 college nonart majors were randomly presented with one of two task situations. One orienting task required subjects to attend to the formal elements of design and composition using adjectives arranged in a semantic differential format: angular-rounded, dark-bright, rough-smooth, disorderly-orderly, and complex-simple. This task required the subject to describe properties of the paintings that were directly observable, and required a shallow level of cognitive processing. The other orienting task, also in a semantic differential format, demanded a deeper level of cognitive processing by requiring the subjects to make associations to properties in the paintings and describe feelings evoked by the paintings: still-active, cheerful-grim, boring-interesting, cool-hot, and ugly-beautiful. Analyses of the descriptions revealed that the college art students liked the paintings more and rated them as significantly more beautiful, more interesting, and more orderly than the nonart students ($p<.05$). Differences also emerged in what was attended to within specific paintings as a function of one's art background.

Following a 15 minute delay, a surprise recognition test was administered, incorporating a random mixture of the 15 original paintings and 16 similar, but different, distracter paintings, each viewed for 15 seconds. Results indicated that the orienting tasks had no significant effect on art majors' memory for the paintings. For the nonart majors, the group which attended to the expressive aspects of the paintings had superior recognition memory for the paintings ($p<.01$). The literature suggests that this superior recognition memory is evidence that these nonart students were able to extract more meaning and coherence from the paintings and were able to process the available information at a deeper level than the formal group.

The findings of this study have implications for art instruction. This study supports the contention that art students perceive works of art differently than nonart students and specific dimensions on which these differences exist are identified. In addition, the findings suggest that, for students with little art background, perception of nonobjective paintings can be manipulated. By orienting attention to particular dimensions of the paintings, the teacher can help the nonart students perceive more coherence and meaning. There is evidence to suggest that if one perceives order and coherence in a nonobjective painting, one will also more likely derive aesthetic pleasure from it. These findings represent a significant step towards identifying factors that can influence one's understanding and appreciation of nonobjective art.

This study has implications for psychological research on memory and perception. It gives additional support to studies showing positive effects for deep vs. shallow processing on memory performance. It also underscores the cognitivist point: that what one perceives is not simply a function of the stimulus, but is constrained further by the skills brought to the perceptual task and by what one is directed to look for.

CHAPTER ONE

INTRODUCTION

Pictures were among the first recording devices ever used and, as a means of communication, are as old as history. Pictures as art forms have been universal in almost every known society and epoch, as recorded by archeology, ethnology, social history,and art history. The artist externalizes ideas and feelings and makes them available and communicable for all who can understand the unique "language" of art.

Art educators have long realized that everyone has inherited some capacity for artistic expression and still more obviously some capacity for aesthetic experience or appreciation. But these aptitudes have, for the most part, been left untrained and undeveloped. Educators can help to develop artistic potentials, not only for the few would-be artists, but for the majority of the population who choose to be the consumers of art, that is, the public for whom, in the last analysis, the artistic creation exists. Both the artist as creator and the public as appreciator are involved in the aesthetic experience of a work of art, which in turn is influenced by individual perceptual skills.

Burt (1967) suggested that when a person views a work of art and derives aesthetic pleasure from it, he perceives "aesthetic order" or structure within the work which comprises a unified whole. Burt proposed that the apprehension of a coherent structure within a work of art can be greatly enhanced by initially attending to the relationships of the parts within the work. Formalist art critics stress the importance of consciously attending to the formal elements in a work of art, the surfaces, colors, lines, shapes, and spaces, for example. A different school of thought, expressivism, advocates that the aesthetic pleasure of a work of art is derived, not from attending to the formal elements, but from the ideas and feelings evoked by the work.

While many contemporary artists continue to create paintings and sculptures in a nonobjective style, the trend today is turning towards more recognizable subject matter. Unlike the sciences, where new technology supplants and makes old technology obsolete, new art styles do not invalidate styles that have gone before, but all art styles remain significant and worthy of study and understanding. Finding "aesthetic order" or structure may be particularly elusive when one is dealing with abstracted or nonobjective art, which has been the predominant art style of the 20th century. Intuitively it seems that the very nature of abstract and nonobjective art, the lack of readily identifiable subject matter, the remoteness from reality, and the interaction of colors and forms *per se*, are some of the reasons that make apprehension and understanding difficult for the average viewer. In the history of art, symbol-making and abstraction are very advanced and sophisticated types of visual communication; Neolithic abstraction followed Paleolithic naturalism.

Studies have repeatedly shown that when a person perceives an ambiguous stimulus as being meaningful with comprehensible forms, he is far more likely to recognize and recall that stimulus than those persons who find it to be incoherent and meaningless. Psychological research also has suggested that memory for visual stimuli is superior when one "processes" the available information in such a way that requires interpretation in order for one to extract meaning. This is a "deeper" level of cognitive processing than mere looking requires. It would appear that an expressivist analysis of a nonobjective painting would involve a "deep" level of information processing by requiring one to synthesize and interpret the effect of the interplay of forms and colors in the painting in order to extract feelings and sensations evoked by the work. On the other hand, the formalist orientation essentially requires one to analyze the design elements and requires little personal interaction with the composition. The mental process involved in a formal analysis would seem to require much less thought and interpretation and could be classified as a "shallower" level of cognitive processing. Based on these assumptions, one would expect an expressivist analysis of paintings to yield memory performance superior to that of a formal analysis. The superior memory performance would be evidence that the subjects were able to find meaning and coherence, and would be able to process the visual information on a deep level. It seems obvious that acquiring a frame of reference for abstracted art works could be greatly facilitated if one were able to perceive "aesthetic order" or meaningful structure within the work, thus increasing his chances of remembering the work for future comparisons.

Need for the Study

Most art teachers, when presenting art works to their students, conform to the formalist orientation (Ecker, 1967), probably because their college art history classes were conducted in this way. Informal interviews with art teachers of all ages from around the country revealed that the teacher training programs in which they participated gave little or no attention to organizing presentations of art works. The scanty literature available regarding competing methods did not appear to convince these art teachers to alter their formalist philosophies.

Because art educators at the college and public school levels teach students who have an interest and background in art, as well as students who do not, more information is needed to determine if both of these groups perceive nonobjective art similarly, and are effectively served by orienting perceptions of art works in the formalist tradition. It seems presumptuous to assume that both groups are able to find "aesthetic order" or coherence in works of art using a single teaching method. One of the key goals in aesthetic education is to enable students to respond sensitively to works of art by helping them to increase the amount of perceived visual information. Research clearly is needed to ascertain the differential effect, if any, that the two basic types of analyses, formalism and expressivism, may have upon one's perception and appreciation of a painting, but more specifically to determine if either analysis contributes to one's ability to find coherent aesthetic structure.

Statement of the Problem

When attending to works of art in an educational setting, the instructor, ideally, is interested in helping students see the works intelligently, sensitively, and pleasurably. Both the formalists and expressivists suggest that their corresponding theories provide the best means for accomplishing these goals. The formal-expressive dichotomy for criticizing and attending to works of art is frequently found in literature pertaining to art criticism; however, no empirical research to warrant the superiority of either formalism or expressivism is available. This study sought to determine how attending to formal or expressive dimensions of nonobjective paintings would affect students' reactions to the paintings. This researcher was also testing the assumption that one's perception of nonobjective paintings could be manipulated by means of orienting tasks. If perception can be manipulated, then art educators can be influential and directive by focusing attention to salient attributes of a work of art. A comparison of the two types of analyses may help determine what critical attributes should be attended to in order to discover meaning and coherence in nonobjective paintings. If one of the two analyses results in students having a superior recognition memory for the paintings, then one could assume that the analysis enabled the students to find more meaningful information in the paintings. If a painting is perceived as meaningful, perhaps appreciation of it also would be more likely.

Research studies have suggested that those with a strong art background perceive works of art differently than those who have no art background. For this reason, art background was controlled in this study.

The Experiment

A sample of 32 college art majors and 32 nonart majors was used to analyze how these groups would react to formal and expressive analyses and to determine which analysis would result in better memory and acceptance of the paintings. The independent variables were art background (art majors and nonart majors) and orienting tasks (formal analysis and expressive analysis in the form of semantic differentials). The dependent variables to be measured were scores on the surprise recognition test, confidence weighted recognition scores and ratings of acceptance ("like-dislike" and "pleasing-displeasing" ratings). While the two orienting tasks served as independent variables, the semantic differential scores they yielded also were analyzed.

The art and nonart majors were randomly assigned to one of the two analysis groups (orienting tasks), both of which simultaneously viewed 15 slides of nonobjective paintings and rated them on either formal or expressive dimensions. After a 15 minute delay, all subjects viewed a random mixture of the 15 original slides and 16 new slides that were different but similar to the originals. During this second viewing, the students indicated which of the slides were the originals and which were the new ones, how confident they were that their answers were correct, and how "likeable" or "pleasing" each painting was.

A "confidence weighted recognition score" was included to help determine whether the students were certain that they recognized the paintings correctly or were guessing at an answer, variables to consider when interpreting the recognition memory scores.

This experiment did not presume that ratings of "likeableness" or "pleasingness" would conclusively measure whether a painting was appreciated. But, due to the lack of guidelines and appropriate tests for measuring aesthetic appreciation of nonobjective paintings, the two sets of adjectives, "like-dislike" and "pleasing-displeasing," were selected as general scales because they could be easily interpreted and understood by the viewers.

Hypotheses

Seven null hypotheses were tested in this study:

H_1: There is no significant difference between the "formal" and "expressive" groups in their ability to correctly recognize the original 15 paintings after a 15 minute delay, when controlling for art background.

H_2: There is no significant difference between overall confidence weighted recognition scores of the art and nonart students and between the "formal" and "expressive" groups.

H_3: There is no significant difference between the responses of art and nonart students on the semantic differential dealing with "formal" aspects of the original 15 paintings.

H_4: There is no significant difference between the responses of art and nonart students on the semantic differential dealing with "expressive" aspects of the original 15 paintings.

H_5: There is no correlation between acceptance ratings ("like-dislike" and "pleasing-displeasing") and recognition scores for the 15 original paintings.

H_6: There is no significant difference between the "expressive" and "formal" groups on overall ratings of acceptance for the original 15 paintings as measured by "like-dislike" and "pleasing-displeasing."

H_7: There is no significant difference between the art and nonart students on overall ratings of acceptance for the original 15 paintings as measured by "like-dislike" and "pleasing-displeasing."

Limitations of the Study

By restricting this study to college undergraduates, generalization of results to a larger population is limited. The art students who participated were volunteers and, therefore, may not be representative of the population of art students as a whole. The nonart students also were volunteers and may not be representative of the nonart college population, even though a variety of majors were represented in the sample.

The reactive effects of the artificial experimental arrangement and the awareness of experimentation may limit the ability to generalize the effects of the experimental variables to persons being exposed to the variables in a nonexperimental setting where such limitations as viewing time and verbal interaction are not controlled.

Definition of Terms

For the purpose of this study, the following definitions of terms were used:

Aesthetics: the discipline which deals with questions concerning the perception and understanding of works of art.

Aesthetic Order: the perception of a work of art as being coherent and meaningful with a structure that seems purposeful and not randomly arranged.

Aesthetic Preference: a personal value judgment of aesthetic quality, merit, desirability, or enjoyment based on one's aesthetic tastes.

Aesthetic Skills: one's ability to organize and interpret aesthetic objects.

Art Students or Art Subjects or Art Majors: the 32 subjects in the study who had taken at least four art courses in college (studio or art history).

Expressivism: a philosophy of art criticism which exphasizes interpretation of ideas and feelings communicated by the work of art.

Formalism: a philosophy of art criticism which emphasizes the formal elements as the basis for understanding a work of art.

Frame of Reference: one's background and experiences that create expectancies that admit or reject certain aspects of the environment; one's mental set.

Nonart Students or Nonart Subjects or Nonart Majors: the 32 subjects in the study who had not taken a high school or college art course of any kind, but may have taken a college Humanities course. In addition, they were not actively engaged in art hobbies (such as drawing, painting, sculpture, ceramics, printmaking, weaving, or photography), nor did they attend galleries, museums, or art shows regularly.

Nonobjective Painting: a type of abstract painting that affords no readily identifiable subject matter.

Rankings or Ratings of Acceptance: the scores on two scales, "like-dislike" and "pleasing-displeasing."

Semantic Differential: a set of controlled associations to a stimulus (the painting) in the form of bipolar adjectives with the subject's task being to indicate the direction and intensity of the association on a seven-step scale.

CHAPTER TWO

REVIEW OF THE LITERATURE

This review provides a philosophical and empirical base for understanding abstract and nonobjective art and how it is perceived. Reviewed are such issues as: the emergence of abstract art from its roots in realism to the predominant art style of the 20th century; several categories and characteristics of abstract art; abstract art in the public school curriculum; several ways art critics suggest one should approach a work of art; and variables which may help to explain why some people understand, appreciate, and remember abstract art, while others do not.

Many studies have attempted to verify that people who have different personality characteristics also have different art preferences. Such characteristics as extroversion, conservatism, religiosity, acceptance of authority, dogmatism, submissiveness, and tolerance of complexity have been measured and attempts have been made to correlate those traits with aesthetic preference. However, a powerful source of individual variability, background, or experience in art, was not controlled, which probably accounted for the contradictory findings. These studies will not be included in this review, but the reader may refer to the following studies for more information concerning personality correlates: Stephenson, 1935; Eysenck, 1940; Rosenberg and Zimet, 1957; Knapp and Green, 1960; Barron and Welsh, 1952; Pyron, 1966; Child and Schwartz, 1967; Barrett and Eaton, 1947; Roubertoux, Carlier and Chaguiboff, 1971; Kloss and Dreger, 1971.

Abstract and Nonobjective Art

From about the middle of the 19th century, painting has gradually moved away from imitation and optical realism and has emerged as an entity in itself. The Impressionists, in the 1870's, contributed to the dematerialization of the object by abandoning traditional drawing, using colors independently of natural appearance, simplifying forms, creating ambiguous spaces and distorting perspectives. Experimentation in detaching paint from its descriptive function prevaled; pure colors were squeezed directly from the tube and free brushwork created surface textures, making color function expressively and independently, while still adhering to recognizable content. Many artists began to simplify pictorial structures based upon geometric shapes, which gradually led to severing the objects altogether and recording them on the canvas, thus creating a new kind of space. Objects were sometimes portrayed from several perspectives using frontal and side views simultaneously, giving the illusion of movement in time (Arnason, 1977).

From the very beginning, the artists who were developing a nonobjective art showed a seriousness of purpose and searched for a new vision and content that went beyond any frivolous desire to shock or outrage the public. These artists were making a critical re-examination of the traditions, premises, rules, logical bases, even the concepts of order, coherence, and beauty that had guided the visual arts throughout history (Rose, 1975).

While the Europeans were developing abstraction, the Americans, for the most part, continued painting in the tradition of realism and impressionism until the outbreak of W.W. II in Europe. The consequent influx of European refugee artists profoundly influenced and transformed the face of American art. Until this time, American art was insular and had no international impact. After the war, the first major original movement in the history of American painting, abstract expressionism, emerged, not so much a style as an idea, and the center of the art universe changed to New York City. The abstract expressionists were a diverse group but generally were divided into three camps: those who worked spontaneously and were concerned with the action of the brush and the texture of the paint; those who were concerned with creating controlled abstract images or forms; and those who were using colored geometric shapes to create illusions (Read, 1975).

The first group, sometimes referred to as "action painters," appeared to produce uncontrolled images based on intuition and the accidental (Arnason, 1977). One should realize that these artists had a solid background in traditional design and any "accidents" that occurred involved manipulations by experienced and accomplished artists who had years of experience in controlling paint on canvas. These artists made an impact on modern painting by introducing the idea of visual imagery without a beginning or an end, implying that the painting could extend beyond the limits of the canvas were it not for the frame. Often working in a very large scale, the paintings seemed to absorb the spectator and allowed him to participate in the environment created by the ambiguity of the picture space (Rose, 1975). Two paintings representing this group were included in the present study.

The second and largest general group of painters abstracted images through color, line, and shape, creating mysterious ambiguous spaces with atmospheric depth. The masses of centralized lyrical colors often seemed to suggest subject matter of figures or landscapes. Some of these artists chose to use flat contrasting colors and well-defined unmodulated shapes, while others pursued textured colors which sometimes blended into the background in a free but controlled manner (Arnason, 1977). Eleven paintings representing this group were included in the present study.

The third and smallest group of abstractionists generally concentrated on a specific theme and continually refined the possibilities of colors and forms within the theme. These artists concentrated on eliminating all extraneous elements in the painting to produce a single dominant experience, often hypnotic in effect. The created planes seemed to advance and recede interchangeably and created movement within the painting that could be controlled by the viewer (Arnason, 1977). Two paintings representing this group are included in the present study.

The revolution of nonobjective art was primarily a revolution in perception where lines, colors, and shapes possess their own forces of expression independent of any association with the external aspects of the real world (Wolfflin, 1958). Goodman (1968) assumed that artistic depiction is essentially a type of description and we learn to read a picture similarly to how we learn a language. Goodman implied that we can learn a new mode of perception, as required for nonobjective art, just as we can learn a new vocabulary. The quest of every serious nonobjective artist was to free art from past aesthetic preconceptions and find new forms and expressive means so that the emphasis was on the painting as an object, a reality in itself, rather than an illusion of anything else. These artists chose to depart from the conception that art should depict "things" and be judged on the virtuosity of the objective representation, the verisimilitude of the illusion (Read, 1975). The nonobjective artists wished to liberate the viewer into a world where nothing is real except the pictorial space and the statement of the picture plane. They sought to change the viewer from a passive to an active participant in the aesthetic experience by creating colors and forms that were often ambiguous, contradictory, and amorphous, requiring more than a brief glance to absorb the feelings and sensations evoked by the large canvases (Herbert, 1964).

While the artists were freed from subject matter, they still worked within and were guided by the classical elements of design and composition: unity, balance, rhythm, texture, line, shape, and color. The aesthetic delight of abstract paintings comes when one allows himself to freely experience the intuitive feelings and sensations evoked by the organization of the colors and imagery and their dynamic interplay on the canvas (Rose, 1975).

While representational art has the widest appeal, abstract and nonobjective art works are probably the least appreciated and understood by the general public of all ages (Salkind & Salkind, 1973). One's conception or expectation of what art should be is learned from the types of art one has had the opportunity to experience, perhaps through school experiences, book and magazine illustrations, television, and art seen in the home and community (Eisner, 1972). It seems obvious that appreciation of an art style involves learning and habituation. This would explain why African art, for instance, may initially seem grotesque and crude until one becomes familiar with it and can enjoy its symbolism and aesthetic appeal. Many innovative artists throughout history were not appreciated for their work until generations later. Rudolph Arnheim (1954) asserts that we can learn to understand abstract art. One researcher explains differences in aesthetic judgment on the basis of an individual's "expectation" of what a given art form should be. He contends that one who is unfamiliar with a particular medium or art style would not be as likely to apprehend the value of it and consequently would judge it differently than one who was experienced with the style and could appreciate its "enhancements" (Yoos, 1967).

If a person's conception is that art is an imitation of nature, he will likely confront a nonobjective painting with the purpose of finding associations to representational forms. If he fails to find forms that have some meaning in reality, he will not know what to make of the work and will dismiss the painting as not living up to his expectation of what categorizes "art". Every visual form elicits expressive characteristics and the impact of the form is measured by the feelings generated in those who encounter it. If one's expectation or frame of reference for an aesthetic form is inappropriate, the expressive content of the work will not be perceived (Eisner, 1972).

Several studies support the contention that if a person is unfamiliar with an art style, he is inclined to find little value in it, perhaps because he lacks a frame of reference which will make it meaningful and coherent. However, as aesthetic experience increases, so does appreciation (Gordon, 1955; Tucker, 1955; Frumkin, 1962; O'Hare, 1976).

Results of studies by Child and his colleagues reveal that adult practicing craftsmen may possess superior abilities for aesthetic judgment of abstract paintings even though they have no background in abstract art and do not live in a culture which would enable them even to be exposed to abstract art (Child & Siroto, 1965; Ford, Prothro & Child, 1966; Iwao & Child, 1966). The subjects in the Child studies were individuals who had continual contact with art and were actively engaged in art production. These studies help to confirm the positive correlation between art experience, interest in art, and aesthetic preferences and judgments. Perhaps those with a strong interest and background in art have a broader concept of what constitutes "art" and can more readily find aesthetic value and meaning than those whose experience and expectation is limited and who must learn to understand and appreciate each new style that they encounter. Child suggested that people with a strong interest in art apply similar aesthetic criteria in judging the relative merits of works of art (Child & Siroto, 1965).

The Study of Abstract Art in Schools

While Child's cross-cultural studies are intriguing, there is no evidence that a media-oriented curriculum yields critical abilities and cultural understandings in American students (Eisner, 1972). By reviewing the content of art curriculum guides, one quickly realizes that art in the public schools deals primarily with the making of art products. Informal discussions with numerous middle school and high school art teachers at art conventions and in local schools over the last five years revealed that a vast majority of these teachers who spoke with this investigator rarely included art appreciation of any kind if their curricula. Many of these teachers said that they would avoid presenting abstract or nonobjective art because their students "didn't appreciate it" and often "made fun of it" when it was displayed in the classroom. These findings are not surprising; art education in American schools has traditionally neglected the study of contemporary art works and has opted for studying the art of past generations (Macdonald, 1970).

This investigator has heard surprisingly similar comments from students and adults who have reported that they had seen some abstract and nonobjective art but did not enjoy or appreciate it: "it doesn't look like art; it looks like a child could do it; it doesn't look like anything; it all looks the same; the artists must not be able to paint real things." All of these comments tend to confirm the premise that the aesthetic perception of visual form is not a product of maturation; it does not occur automatically; it must be learned and developed.

A key goal for art education is to increase students' range of experiences, broaden their frames of reference about what constitutes human creativity, and develop aesthetic skills needed to organize and interpret their perceptual responses (McFee & Degge, 1977). Students are capable of becoming intelligent viewers, sensitive interpreters, and perceptive critics of art, but this tremendous creative potential is left largely untapped by art education (Feldman, 1970).

The domains of artistic learning involve: (1) the productive, learning the skills necessary for producing products using art media; (2) the historical, relating to understanding of and appreciation for art's function in man's cultural heritage; and (3) the critical, dealing with the ability to respond sensitively to visual forms (Feldman, 1970; Eisner, 1972). Since the primary goal of art criticism is understanding, we will examine the critical domain for ways to attend to works of art.

Theories of Art Criticism

Estimates have been made that the average viewer in an art museum spends less than seven seconds looking at a work of art. In this brief time, the viewer, especially one who is aesthetically naive, makes impulse judgments as to the merit of the work and his preference for it (Eisner, 1972). One is certainly entitled to express a reaction of preference based on one's personal tastes; however, preferences made in haste often preclude one from seeing the work in depth. Certainly art educators strive to help students acquire the ability to respond sensitively to visual form by enabling them to increase the amount of perceived visual information present in the work of art and to see qualities and relationships that might normally escape attention, regardless of whether the work is the student's own creation or the work of a master. In order to perceive and understand the complex visual information inherent in the work of art, one must attend to it with more than a superficial glance. The various theories of art criticism suggest careful and systematic approaches for looking at and evaluating works of art so that the viewer is able to extract more information from the work than would be the case if no logically organized method were used. A primary goal of art criticism is that of sharpening perception; and critics contend that if one is able to perceive the essential information from a work of art, one then has a sound foundation for making judgments concerning its merit. By directing attention to those aspects of a work of art that are deemed appropriate, the critic endeavors to ensure that appreciation or enjoyment of the work will be enhanced.

While philosophers and aestheticians have described numerous approaches for determing aesthetic value and meaning, four approaches or theories applicable to nonobjective art will be reviewed here: formalism, expressivism, Ecker's (1967) deductive approach, and a four-step systematic approach.

Formalism

One philosophy of art criticism and art appreciation is formalism. "Most art teachers have absorbed uncritically a formalist doctrine of aesthetics" (Ecker, 1967, p. 6). Formalists generally stress the need to limit one's experience with a painting by dealing exclusively with its formal structure, the relationships among the particular forms that constitute the work. Formalists are not at all concerned with incidental personal associations or feelings about the work; instead, aesthetic pleasure should come from the work of art itself and how it is put together irrespective of its subject matter. Emphasis is placed on contemplation and analysis of the relationships of the formal elements, especially the surfaces, colors, lines, shapes, and spaces, for purposes of understanding the work of art as completely as possible. Cyril Burt states that although aesthetic relations can be grasped intuitively, their apprehension can be greatly aided by a preliminary analytical study of the relations involved, the most important task of aesthetic education (Burt, 1967, p. 27). Formalists reason that since artists use these elements of design to organize their works, viewers should also use them to understand the completed work. Analyzing and interpreting personal feelings about the work would be superfluous and trivial if one has thoroughly attended to the visual elements and perceived their relationships. Formalists consider social, psychological, historical, literary, and emotional associations and descriptions as aesthetically irrelevant (Feldman, 1967, 1970).

Expressivism

Another approach to art appreciation and art criticism is the experiential dimension, which is incorporated into the aesthetic philosophy of expressivism and is at the opposite pole from formalism. Expressivists do not passively contemplate the elements of design in a work of art; instead they search for underlying ideas and feelings communicated by the work. How the work is organized is not as relevant to them as the feelings resulting from responses to the forms of the work or the ideas generated by the forms. Rudolph Arnheim (1954) proposed the theory that the intrinsic character of the forms and their relationship to other forms within the painting determine the quality of the feelings and reactions evoked within the viewer. This theory suggests that one who is able to perceive the qualities and inherent relationships within a work of art will be able to respond to the work with sensitivity.

Suzanne Langer, a proponent of expressivism, states that "a work of art is an expressive form created for our perception through sense or imagination, and what it expresses is human feeling" (Langer, 1957, p. 15). Expressivists see the formal elements and their combinations as vehicles for the communication of feelings. These feelings and sensations are partly a result of learning to perceive the elements in the painting appropriately and partly a function of being able to interpret them using one's capacity for inference and intuition. Good art should communicate effectively and forcefully and arouse the viewer's emotions, regardless of whether the feelings elicited have positive or negative connotations (Feldman, 1967, 1970).

A Deductive Approach to Criticism

David Ecker (1967) proposed a method for guiding perceptions, which is related to expressivism in its approach to viewing a work of art. Participants first are encouraged to express immediate impressions, opinions, attitudes, and feelings about the work of art, after which the instructor points out the variety of possible reactions everyone may have had to the same work. The next step is to sort out these initial reactions and attempt to justify them with supporting evidence from the painting itself. The final step is to introduce the participants to other art works, contemporary and historical, which may broaden their frames of reference and enable them to perceive the original work as completely as possible by means of comparison and reference to the works just seen.

A Four-Step Systematic Approach to Criticism

Edmund Feldman (1967, 1970) and Robert Smith (1968) suggest the performance of art criticism should proceed in a systematic manner with the intent being to avoid the natural tendency to judge a work deductively, by first stating a conclusion and then setting about finding reasons to validate it. One must learn to withhold judgment and allow time for the intellect to sort and organize the multitude of sensations, impressions, and associations encountered in a work of art (Feldman, 1967).

The first stage, "description," involves objectively naming what is present in the work. In the case of abstract art, for example, one would describe shapes, colors, conformations, and paint texture. The second stage, and related to the first by its emphasis on being objective, is the "formal analysis" of the painting. In this stage one describes qualities of lines, colors, and shapes and how they have been organized.

and located in space. The first two stages could correspond with the formalist theory of art criticism. The third stage, "interpretation", deviates from being totally objective and endeavors to determine what the work of art means, what its themes and symbols are, what ideas or feelings are expressed. This stage is similar to the expressivist theory of art criticism. The final stage, "judgment," is the one which most viewers perform when initially viewing a work of art and involves determining the aesthetic merit or importance of the work, ideally by comparison with other comparable works.

The following studies shed light on the variables to consider when explaining differential memory performance for visual material, particularly visual material, that, like nonobjective art, could be perceived as ambiguous, incoherent, and meaningless.

Depth of Processing and Memory

It is hypothesized by a number of researchers that one's ability to remember verbal or visual stimuli is determined largely by the manner in which one processes the available information, whether on a superficial level or on a deeper level (Craik & Lockhart, 1972). The present study attempts to dichotomize the processing of information available in the paintings by requiring subjects to describe the surface characteristics of the paintings (superficial level) or the expressive effects of the paintings (deeper level).

To determine the effect of levels of cognitive processing on incidental learning and recall, researchers have carefully manipulated the orienting tasks by varying the type of responses required of the subject. When dealing with words, subjects were asked to attend to such superficial aspects as syllable counting, rhyming, or checking the letter "e" when it appeared. In contrast, the groups performing tasks requiring a deeper level of processing, which required thinking and attending to the meaning of the word (such as rating the word for pleasantness, or determining if the word fit into the context of a particular sentence), had significantly higher levels of recall than the "superficial" group (Hyde & Jenkins, 1969; Johnston & Jenkins, 1971; Till & Jenkins, 1973; Walsh & Jenkins, 1973; Jenkins, 1974a, 1974b; Craik & Tulving, 1975).

Similar findings supporting the levels of processing theory have been conducted using visual stimuli. Using photographs of faces, similar to those in a school yearbook, Bower and Karlin (1974) found that the subjects who were asked to classify each photograph as male or female (a superficial task) recognized significantly fewer of the faces on a surprise recognition test incorporating distracter photographs than did those subjects who rated the photographs according to "likeableness and honesty" (a deep task). Both groups viewed each of the faces for the same amount of time, yet the "deeper" group was required to extract meaning from the faces, which apparently affected their memory for the faces.

An interesting study of incidental learning by Bransford, Nitsch, and Franks (1977) involved viewing a magazine picture of a living room for one minute. The subjects who were asked to find the embedded "x's" remembered much less about the picture than did the group that was asked to determine the actions that could be performed on the objects in the picture (such as "drink from" or "sit on"). The "action" group remembered the picture as well as the control group, which had only been given instructions to remember the picture for later recall. These studies support the hypothesis that learning and retention of visual material is in large part a function of how one analyzes and elaborates the available information. A study by Koh, Kayton, and Peterson (1976) further supports the idea that learning and retention are skills that can be developed if one is taught how to effectively process information.

It is important to note, however, that the level of processing and one's ability to recall information is dependent on what one is asked to recall. If one is asked to attend to isolated parts of a picture and is later tested for recall of the isolated parts, memory usually is good. On the other hand, if one attends to the whole picture and is later asked to identify parts, memory is poor (Bransford, Nitsch, & Franks, 1977). This study, as well as others (Fisher & Craik, 1977; Morris, Bransford, & Franks, 1977; Kolers, 1978; Stein, 1978), points out that if one designs testing conditions that actually assess superficial information, then one can expect that a shallower level of processing will prove superior to deeper processing.

In the present study, one group of subjects attended to the surface characteristics of the paintings, which presumably involved looking at formal aspects of the paintings in order to rate them on these dimensions: rough-smooth, angular-rounded, disorderly-orderly, dark-bright, and simple-complex. The second group was directed to attend to more expressive aspects of the paintings by evaluating them on these dimensions: active-still, grim-cheerful, boring-interesting, hot-cool, and beautiful-ugly. Since both groups saw the entire painting as a complete unit and were tested for their recognition of it as a complete unit, differences in recognition memory due to a reversal in testing conditions could be ruled out.

Stimuli Meaning and Coherence as Related to Learning and Memory

The quality of the information to be learned and remembered, its relevance or arbitrariness, is an important consideration for researchers. A study by Morris, Stein, and Bransford (1979) illustrated that prose passages are easier to recall when the subjects, verbs, and adjectives relate to one another in a significant manner and allow one to use his prior knowledge to elaborate on the meaning of the sentence. The subjects were able to remember the parts and find coherence in the sentence, "The fat man got stuck in the cave," because "fat" and "getting stuck" related to prior knowledge of these terms. By contrast, the parts of the sentence, "The bald man got stuck in the cave," were more difficult to recall, presumably because the target words seemed arbitrary, making the sentence less coherent and less comprehensible as a meaningful whole.

That one is able to remember meaningful "chunks" of information much more easily than arbitrary, isolated pieces of information also is demonstrated by the studies of chess experts (deGroot, 1965; Chase & Simon, 1973). DeGroot found that both novices and chess masters had a poor memory for chess pieces that were randomly placed on the board. However, when chess configurations were presented that simulated an actual game, the masters were able to recall accurately the positions of the chess pieces after looking at the board for only five seconds. These experts were able to relate the configurations to their prior knowledge of chess and encode the information into coherent chunks, whereas the novices continued to perceive isolated pieces of information. If one perceives a visual event as an arbitrary jumble, comprehension and retention will be poor (Goldstein & Chance, 1971; Paivio, 1971). These studies support the hypothesis that memory performance is not a function of the surface characteristics or attributes of the stimulus *per se*, but that the subject's understanding of the relationships within the stimulus or his ability to construct or identify a meaningful context for the attributes is an important determinant of long-term memory and recall for the material (see also Bransford & Johnson, 1972; Bransford & McCarrell, 1974; Cohen, 1978a, 1978b; Delis, Fleer, & Kerr, 1978). If a person does not have the preexisting knowledge and skills necessary for detecting coherence and finding meaningful relationships within a stimulus, one can expect that memory distortions may result, even though the person is confident that recall is accurate (Carmichael, Hogan, & Walter, 1932; Bartlett, 1932; Bransford, Barclay, & Franks, 1972; Spiro, 1977).

The picture-memory experiments of Standing and his colleagues (Standing, Conezio, & Haber, 1970; Standing, 1973) demonstrate further that memory for visual material is dependent on one's current knowledge and skills. Subjects were presented with up to 10,000 magazine photographs to be remembered for a later forced-choice recognition test. Results indicated that more than 90% of the pictures were correctly recognized even after a three-day delay, a remarkable indication of one's ability to store pictorial information. The magazine photographs and distracters were distinctly different in subject matter, thus creating a minimum of confusion for later recognition. Had the subject matter been similar, as with Bower and Karlin's (1974) yearbook faces, recognition ability would have likely been dramatically reduced.

Comparative Reactions of Art and Nonart Subjects to Abstract and Nonobjective Art

Most comparative research of art and nonart subjects deals with determining preferences for several different art styles or graphic designs (Barron & Welsh, 1952; Gordon, 1955; Vitz, 1966; O'Hare, 1976) and does not enlighten the issues of concern in this study.

Art and nonart subjects' preferences for abstract art have been studied with conflicting results: using 54 abstract paintings, Lindauer (1969) found that his 12 subjects who were artists tended to prefer the same paintings as a group, whereas the 28 undergraduate nonartists tended to prefer different paintings from the artists but achieved a significant number of consensus judgments within their group. In contrast, Osborne and Farley (1970) matched 15 graduate art students and 15 education students for age and sex in a study of preferences for 15 abstract paintings. Results showed no significant differences between the groups. That these researchers failed to control for possible art background in their nonart subjects could easily account for the conflicting findings in these two studies of preference for abstract art. In the present study, preferences *per se* were not measured, although "like-dislike" and "pleasing-displeasing" may be related to preference judgments. That abstract paintings were used in these two studies further limits the significance and generalizability to the present study which used nonobjective paintings.

The single study most closely resembling the present one was conducted by Tucker (1955) using 40 semantic differentials to compare 10 artists' and 33 nonartists' descriptions of seven representational and four nonobjective paintings. By analyzing descriptions of the nonobjective paintings separately from the representational paintings, he found that the artists tended to describe the nonobjective paintings very similarly as a group, whereas the nonartists differed significantly among themselves in their descriptions. Tucker, however, did not control for possible art background in his nonart subjects. His study did not categorize the adjectives in terms of formal or expressive dimensions, nor did he attempt to orient perceptions or measure memory for the paintings. One must also be aware that Tucker's study involved only four nonobjective paintings, thus restricting generalizability.

Summary

It is apparent that little research has been conducted to analyze art and nonart subjects' reactions to nonobjective paintings. Art teachers have no convincing evidence to suggest that students with varying degrees of art background would react differently from each other when presented with nonobjective paintings. If these art teachers closely examined the aesthetic literature dealing with ways to approach nonobjective paintings, they would soon realize that the theories of art criticism basically involve dealing with formal elements, expressive elements, or a combination of the two, when analyzing a work of art. There is no empirical research that compares or analyzes the differential effects that a formal or expressive analysis may have on one's perceptions and reactions to works of art. Suggestions by critics that one analysis is superior to another is based on the critic's personal opinions and theory of aesthetics. Art educators clearly need more information regarding the effect of these two analyses on students' perceptions in order to determine if either analysis enables their students to understand works of art more completely.

This investigator chose not only to analyze students' reactions, but also to examine the effect that attending to either formalist or expressivist elements may have on one's ability to later recognize the paintings. The ability to discriminate one painting from another is an important goal for developing the knowledge base needed to build a frame of reference or background against which subsequent art works can be compared, analyzed, and ranked. But, more importantly, a superior memory for the paintings may indicate that the students were able to perceive more meaning and coherence, and consequently, process the visual information more deeply.

CHAPTER THREE

METHODOLOGY

This study attempted to analyze reactions of college art and nonart majors to nonobjective paintings and to determine if a formal or expressive analysis would differentially effect memory for the paintings and acceptance for them. Seven null hypotheses were tested in this study:

Hypotheses

H_1: There is no significant difference between the "formal" and "expressive" groups in their ability to correctly recognize the original 15 paintings after a 15 minute delay, when controlling for art background.

H_2: There is no significant difference between the overall confidence weighted recognition scores of the art and nonart majors and between the "formal" and "expressive" groups.

H_3: There is no significant difference between the responses of art and nonart majors on the semantic differential dealing with "formal" aspects of the original 15 paintings.

H_4: There is no significant difference between the responses of art and nonart majors on the semantic differential dealing with "expressive" aspects of the original 15 paintings.

H_5: There is no correlation between acceptance ratings ("like-dislike" and "pleasing-displeasing") and recognition scores for the 15 original paintings.

H_6: There is no significant difference between the "expressive" and "formal" groups on overall ratings of acceptance for the original 15 paintings as measured by "like-dislike" and "pleasing-displeasing."

H_7: There is no significant difference between the art and nonart groups on overall ratings of acceptance for the original 15 paintings as measured by "like-dislike" and "pleasing-displeasing."

Procedure

The experiment was conducted in a conference room measuring 20 x 13 feet. Subjects sat in chairs around a large rectangular table. A Kodak Ektagraphic Carousel slide projector with automatic focus was used to project the slides from a distance of 20 feet onto a screen which measured 4 feet, 10 inches square. Ten separate sessions were conducted with art and nonart majors in each session.

Subjects were randomly given booklets which contained an information sheet (see Appendix A) and 15 pages of either formalist or expressivist semantic differentials (see Appendices B and C). The experimenter read the instructions aloud to all participants (see Appendix D for scenario of instructions). The slides were shown for 45 seconds each, with a five second interval between each one, for a total of approximately 13 minutes. After all 15 of the original slides were shown, the booklets were collected. Following a 15 minute break, new booklets were distributed and a surprise recognition test was administered, consisting of a random mixture of the 15 original slides and 16 distracter slides, each viewed for 15 seconds with a five second interval between each one. In addition to the recognition task, subjects indicated ratings for "like-dislike" and "pleasing-displeasing" for each painting (see Appendix E).

The entire experiment, including instructions, took approximately 50 minutes.

The Subjects

The subjects were 64 male and female college undergraduates attending the University of Florida, Gainesville, Florida, during the spring quarter of 1980. Thirty-two of the subjects were art majors enrolled in the College of Fine Arts and 32 were nonart majors enrolled in other colleges in the University. Five students enrolled in the College of Education represented the largest number of nonart subjects from a single college, followed by three students from the College of Business Administration. The other nonart subjects were enrolled in various other colleges in the University, although every college was not represented.

All of the subjects volunteered to take part in the study and knew in advance that they would be paid $2 for their participation.

The experimenter visited 12 art classes (studio and art history) in the College of Fine Arts to recruit the 32 art volunteers. Students were told that they could participate in an experiment that would take approximately 50 minutes, during which time they would view slides of abstract paintings and indicate the adjectives they felt described the paintings. They were told that the purpose of the study was to determine whether art majors and nonart majors react differently to abstract paintings, and that they would be paid for their participation. The volunteers signed their names on a sheet indicating the time during which they would be participating.

The nonart students were recruited by visiting a college sorority house during dinner on a "date night" when both male and female students were present. As with the art students, these students were told they could participate in an experiment to determine whether art majors and nonart majors react differently to abstract paintings and that they would be paid for their participation. Only students who had never taken an art course in high school or college would be needed. The students were told that the experiment would take approximately 50 minutes, during which time they would view slides of abstract paintings and indicate the adjectives they felt described the paintings. The volunteers signed their names of a sheet indicating the time during which they would be participating.

The experimenter telephoned all the volunteers the night before they were to participate to remind them of their appointments.

The primary determinant for a person's classification as an art subject was the response on the information sheet indicating the number of art courses taken in high school or college. It was decided prior to the experiment that to be classified as an art subject the person must have taken at least four art courses (studio or art history) in college. It was thought that four courses would represent a sufficient amount of artistic motivation and curiosity as well as exposure to art media or to art ideas to consider the subject relatively sophisticated about art.

Classification as a nonart subject was expected to be more complex since the subject would need to be relatively naive about art. It was decided that taking the college Humanities requirement would not disqualify the student as a nonart subject, otherwise this restriction would have eliminated all students but those in their freshman year. The general syllabus for Humanities designates only two weeks of a 10 week quarter for studying art and architecture. This is hardly enough exposure to permit a student to become a sophisticated critic or viewer. A prior determination was made to eliminate any nonart subjects from the study if they had taken an art course of any kind. However, it would be presumptuous to assume that a person could only become knowledgeable about art by taking art courses. With the wealth of good art books and the availability of galleries, museums, and art shows for viewing a variety of art styles, one could become sophisticated about art without ever having taken a formal art course. For this reason, one of the questions posed on the information sheet sought to measure the student's interest in art outside the school setting. If any of the nonart subjects had indicated that they purchased art books and regularly attended museums and art shows, they would have been rejected from the study. No nonart subjects had to be rejected on this point.

The cross-cultural studies by Child and his colleagues (Child, 1965; Child & Siroto, 1965; Iwao & Child, 1966) suggest that simply to be active in the production of art enables one to evaluate and distinguish between good and bad art products to a sophisticated degree, even though the medium in which one is working is different from that being evaluated. To account for any nonart subjects who may be producing art, either as a hobby or vocation, an item regarding this issue was included on the information sheet. None of the nonart subjects indicated that they had ever been involved with any of the art media listed.

To get an idea of how receptive the subjects were to abstract art, not just as a concept but on a personal level, the information sheet included the question, "If you had the money, could you imagine yourself spending $50 or more for an abstract work of art?" As expected, all but one of the 32 art subjects responded with "yes" or "possibly." Twelve of the nonartists responded "no" and 20 responded "yes" or "possibly." Finally, all subjects responded negatively to the question: "Are you color blind?"

Instrumentation

The Information Sheet

The information sheet (see Appendix A) was constructed by the experimenter for the purpose of determining the subjects' background and experience in art so that they could be classified as an "art" subject or as a "nonart" subject.

Child (1965) found that the college undergraduates in his study who had a strong background in art, as measured by their formal art education, their experience in viewing art in museums, magazines, and books, and their interest in pursuing art-related hobbies, were better able to discriminate good art from bad art when presented with pairs of each. That art background would be a significant variable to control when measuring reactions to art works is supported by numerous studies (Barron & Welsh, 1952; Gordon, 1955; Tucker, 1955; Frumkin, 1961; Child & Siroto, 1965; Iwao & Child, 1966; Eisner, 1966; Neperud, 1970).

The questions asked on the information sheet sought to determine the subjects' formal and informal involvement with art by measuring art training, motivation in viewing art by visiting art shows and galleries, purchasing art books or art magazines, and pursuit of creative hobbies.

The Semantic Differentials

The semantic differential (SD) as a measuring device was first used by Karwoski and Odbert (1938). The SD gained widespread acceptance and became a popular tool in the behavioral sciences after the book, The Measurement of Meaning (Osgood, Suci, & Tannenbaum, 1957), was published. The versatility, usefulness, and relative simplicity of the SD made it an appealing instrument for researchers seeking to measure controlled associations to a stimulus. The SD is a set of bipolar adjectives with the task being to indicate the direction and intensity of the association on a seven-step scale. The adjectives used in the SD may be varied in nature, and the type selected depends chiefly upon the interests of the investigator and the nature of the problem. The SD has been shown to be sufficiently reliable and valid for many research purposes (Osgood, et al., 1957, pp. 140-153, 192-193). This instrument has proven to be useful for recording affective associations of stimuli, particularly to the extent that such associations are culturally or subculturally defined so that measurements may be averaged over groups of individuals (Norman, 1959).

The semantic differentials used in this study are presented in Appendix B and Appendix C. To avoid a "spurious" regression towards the middle of the scale, the adjectives were selected for their biopolarity of meaning and relevance for describing two-dimensional nonobjective art. For the same reason, adjectives expected to be familiar to all subjects were selected and technical art terms that may not have equivalent meaning for the art and nonart subjects were avoided.

Regarding content validity, each of the adjective pairs were judged for relevance by faculty members in art education and psychological foundations as well as by art educators who attended a research seminar at the 1980 National Art Educational Association Convention. The seminar was available for any N.A.E.A. members who were involved in research and who wanted to share their ideas with other researchers. Among the 12 in attendance, all agreed that the selected sets of adjectives were indeed relevant to "formal" and "expressive" aspects of paintings as defined in this study.

To avoid response-set variance, the adjective pairs were randomly reversed on the answer sheets for each of the two SDs. For example, "still-active" appeared on seven of the answer sheets, while "active-still" appeared on eight of them.

Each SD was limited to five sets of adjectives, an amount thought to be sufficient for accomplishing the orienting task without fatiguing the subjects.

The "Formal" Semantic Differential

The criteria for selecting the pairs of adjectives used in the SD for describing the formal characteristics of the paintings were: (1) to use adjectives that would direct the subjects' attention to the visual forms of the painting, those literal aspects of the work which exist on the canvas "outside" the viewer, thus encouraging a close examination of the painting as the formalists advocate; (2) to use adjectives that might minimize subjects' inferences or interpretations of the paintings, which the experimenter assumed would require a rather shallow level of cognitive processing.

The adjectives used in the "formal" SD were intended to direct the subjects' attention to the contours, textures, colors, organization, and structure of the paintings, those aspects which are rather objectively evident but would require the viewer to look closely at the painting and attend to formal relationships within the painting. The five sets of adjectives selected were: angular-rounded, rough-smooth, simple-complex, dark-bright, disorderly-orderly. The first three sets of adjectives listed above were selected from lists in The Measurement of Meaning (Osgood, Suci, & Tannenbaum, 1957).

The "Expressive" Semantic Differential

The criteria for selecting the pairs of adjectives used in the SD for describing the "expressive" aspects of the paintings were: (1) to use adjectives that would require the subject to make associations to properties and interpret what he sees in the painting, which the experimenter assumed would require a deep level of cognitive processing; (2) to use adjectives that would require the subject to reveal feelings and make value judgments about the paintings, as advocated by the expressivists. The five sets of adjectives selected were: boring-interesting, beautiful-ugly, active-still, grim-cheerful, hot-cool. The first two sets of adjectives listed above were selected from the lists of Osgood et al. (1957).

The Fifteen Original Slides

The 15 original slides were of nonobjective paintings by acclaimed artists. The paintings were chosen by looking through quality art books and selecting a sample by seven artists that represented varying degrees of complexity, hard-edged and hazy outlines, muted and bright colors. A professional photographer was employed to photograph the paintings and mount the slides to insure superior likenesses.

The 15 original slides represented these paintings: Nicolas De Stael's "Composition, 1951," "Study at La Ciotat," "Les Indes Galantes," and "Sicilian Harbor"; Hans Hofmann's "X-1955" and "Idolatress"; Adolph

Gottlieb's "Trio" and "Thrust"; Ad Reinhardt's "Red Painting"; Georgia O'Keefe's "From the Plains I," "Jack-in-the-Pulpit V," "Black Rock with Blue III," and "Evening Star III"; Stuart Davis's "Colonial Cubism"; and Josef Albers' "Homage to the Square."

These slides were shown to all of the subjects in the same order for 45 seconds each with five second intervals between each one.

The Sixteen Distracter Slides

The purpose of the distracter slides was to present new paintings that closely resembled, but were distinctly different from, the original paintings. It was thought that the subjects who had not formed clear images of the originals could be identified by their confusing the originals with the distracters. Each original slide had a paired distracter; however, one painting, "Trio," had two distracters, making a total of 16 distracter slides for 15 original slides. The experimenter considered it important to have this extra distracter so that the subjects would not initially be aware that the experiment involved a paired distracter for each original.

Six of the distracter slides were made by photographing experimenter-made paintings which were distortions of "X-1955," "Study at La Ciotat," "Trio," "Les Indes Galantes," "Colonial Cubism," "Thrust," and "Idolatress." The distortions were primarily in the forms or shapes of the paintings: curved forms were made straight, and hazy shapes were made clear. Color distortions were present due to the difficulty in exact color matching, but were unintentional. The experimenter-made paintings were done on canvas paper using acrylic paint and tended to project as slides on the screen with a texture or "graininess" unlike that of the original paintings.

Eight of the distracter slides were by the same artists as their paired originals. Six of these paintings were selected because they were from a "series" by the artists using similar forms or shapes as the originals. Those distracters which were part of a series by the artists were: De Stael's "Composition, 1951"; O'Keefe's "From the Plains II," "Evening Star V," "Black Rock with Blue Sky and White Clouds"; Reinhardt's "Red Painting"; and Albers' "Homage to the Square." Two of the slides were of entirely different paintings, but by the same artists as the originals: O'Keefe's "Dark Abstraction" and De Stael's "Red Sky," chosen because of their similarity to the originals in form and color.

As with the originals, a professional photographer was employed to make the slides.

The distracter slides were randomly mixed with the original 15 slides to make up the group of 31 slides used in the recognition task. To avoid responses which may be a result of seeing the original slide before seeing its distracter (or vice versa) the experimenter arranged for half of the subjects to view the random mix; the other half viewed a mix consisting of reversals of the original and the distracter. In this way, an equal number of subjects in each of the four groups viewed an original before seeing its distracter and an equal number viewed the distracter before the original. In order to accomplish this, the order of the slides was alternated with each of the 10 experimental sessions.

Data Analysis

To insure that the data obtained from the semantic differentials were uniform, regardless of adjective reversals in the formats, the experimenter coded each set of adjectives using an identical orientation.

The recognition test included the question, "How certain are you that your answer is correct?" To code this item, the experimenter first determined whether the response was correct or incorrect and then assigned a weighted score, depending on the confidence rank the subject had indicated. Individual confidence weighted recognition scores for each of the 31 paintings were calculated.

Table 1

Coding Procedure for Confidence Weighted Recognition Scores

1	2	3
uncertain	fairly sure	positive

Answer was:	Confidence rank:	Weighted score:
correct	positive	6
correct	fairly sure	5
correct	uncertain	4
incorrect	uncertain	3
incorrect	fairly sure	2
incorrect	positive	1

Analysis of the data generated by the subjects in this study was accomplished using Student's t tests, correlations, and analyses of variance procedures, using the Statistical Analysis System (SAS) computer package (Barr, Goodnight, Stall, & Helwig, 1976).

CHAPTER FOUR

DATA ANALYSIS AND RESULTS OF THE STUDY

This study attempted to analyze the reactions of college art and nonart majors to nonobjective paintings and to determine if a formal or expressive analysis would differentially affect memory for the paintings and acceptance for them. The nonart majors had not taken any art courses in high school or college; the art majors had taken at least four college art courses. The formal analysis required subjects to attend to formal elements in the paintings: contours, textures, color tones, organization, and structure. The expressive analysis required interpretation of the paintings' mood, dynamism, attitude, emotional appeal, and attractiveness. Each of the two types of analyses were presented in a semantic differential format using five sets of adjectives.

The seven hypotheses tested in the study are listed below followed by the results of the data analysis.

H_1: There is no significant difference between the "formal" and "expressive" groups in their ability to correctly recognize the original 15 paintings after a 15 minute delay, when controlling for art background. (For the nonart majors, the "expressive" analysis resulted in a superior memory performance; therefore, Hypothesis 1 was rejected.)

H_2: There is no significant difference between overall confidence weighted recognition scores of the art and nonart majors and between the "formal" and "expressive" groups. (The art students were significantly more confident that the nonart students, and the "expressive" group was more confident that the "formal" group that they had correctly recognized the paintings; therefore, Hypothesis 2 was rejected.)

H_3: There is no significant difference between the responses of art and nonart majors on the semantic differential dealing with "formal" aspects of the original 15 paintings. (Seventeen significant differences were noted; therefore, Hypothesis 3 was rejected.)

H_4: There is no significant difference between the responses of art and nonart majors on the semantic differential dealing with "expressive" aspects of the original 15 paintings. (Because 19 significant differences were noted, Hypothesis 4 was rejected.)

H_5: There is no correlation between acceptance ratings ("like-dislike" and "pleasing-displeasing") and recognition scores for the 15 original paintings. (Only one significant correlation was noted among the three variables, resulting in a failure to reject Hypothesis 5.)

H_6: There is no significant difference between the "expressive" and "formal" groups on overall ratings of acceptance for the original 15 paintings as measured by "like-dislike" and "pleasing-displeasing." (No significant differences in acceptance for the paintings was noted, resulting in a failure to reject Hypothesis 6.)

H_7: There is no significant difference between the art and nonart groups on overall ratings of acceptance for the original 15 paintings as measured by "like-dislike" and "pleasing-displeasing." (While both the art and nonart majors "liked" the paintings overall, the art students "liked" them significantly more; therefore, Hypothesis 7 was rejected.)

Hypothesis 1

To test the first null hypothesis, that no differences will be found on recognition scores, a 2 x 2 factorial analysis of variance factorial design was used. The first variable, art background, consisted of (1) nonart students, and (2) art students. The second variable, orienting task, consisted of (1) formal orientation, and (2) expressive orientation. Because a significant interaction was noted, the simple main effects were tested. Results of the Student's t test revealed that the orienting tasks had a significant effect for nonart subjects on their ability to correctly recognize the paintings ($t(60)=5.54$, $p<.01$) with the expressive groups demonstrating superior recognition. No effect was found for art students ($t(60)=1.74$). For this reason Hypothesis 1 was rejected. Refer to Tables 2 and 3 for additional data.

Table 2

Analysis of Variance
for Scores on Recognition Test

Source	df	SS	MS	F
Art background	1	112.89	112.89	55.78**
Orienting task	1	70.14	70.14	34.66**
Interaction	1	19.14	19.14	9.46**
Error	60	121.44	2.02	
Total	63	323.61		

**$p<.01$

Table 3

Means and Standard Deviations of Recognition Scores for Groups Differing in Art Background and Orienting Task

	Art Background			
	Art		Nonart	
Orienting Task	M	SD	M	SD
Expressivist	30.25	.68	28.69	1.25
Formalist	29.25	1.61	25.50	1.86

Note: Maximum possible score = 31

Hypothesis 2

To test the second null hypothesis, that there were no differences in confidence weighted recognition scores, a 2 x 2 factorial design was employed, with art background (art-nonart) as one variable and orienting task (formal-expressive) as the other. The results of the analysis of variance to test the confidence weighted scores disclosed that there was no significant interaction between orienting task and art background (see Table 4). There was a significant difference between the two orienting tasks, with the "expressive" group scoring significantly higher than the "formal" group. The art students scored significantly higher than the nonart students on the confidence weighted recognition variable (see Table 5). Hypothesis 2 was rejected.

Table 4

Analysis of Variance of
Confidence Weighted Recognition Scores

Source	df	SS	MS	F
Art background	1	3525.39	3525.39	62.88**
Orienting task	1	2220.77	2220.77	39.61**
Interaction	1	206.64	206.64	3.69NS
Error	60	3363.69	56.06	
Total	63	9316.48		

**$p<.01$

Table 5

Means and Standard Deviations of Confidence Weighted
Recognition Scores for Groups Differing in Art
Background and Orienting Task

	Art Background			
	Art		Nonart	
Orienting Task	M	SD	M	SD
Expressive	180.25	5.14	169.00	8.82
Formal	172.06	7.82	153.63	7.67

Note: Maximum possible score = 186

Hypothesis 3

For Hypothesis 3, to determine if art and nonart students would make significantly different ratings on "formal" aspects of the paintings, 75 one-way analyses of variance were performed (five sets of adjectives x 15 paintings). With such a large number of tests one could expect that approximately four differences would occur by chance. Results indicated that 17 significant differences in ratings occurred over nine paintings. The individual significant differences for each painting are presented in Tables 6-18 and summarized in Table 23. Hypothesis 3 was rejected.

Hypothesis 4

Another set of 75 one-way analyses of variance were performed for Hypothesis 4, to determine if art and nonart students would respond differently to the "expressive" aspects of the paintings. Again, one could expect that approximately four differences would occur by chance. However, results indicated that 19 significant differences in ratings occurred over nine paintings. The individual significant differences for each painting are presented in Tables 6-18 and summarized in Table 23. Hypothesis 4 was rejected.

Hypothesis 5

To test Hypothesis 5, that there is no correlation among the two acceptance ratings and recognition scores for the 15 original paintings, correlations among these three variables were examined. The three variables were: (1) like-dislike, (2) pleasing-displeasing, and (3) correct-incorrect recognition. Results revealed a single significant correlation; however, since 30 matrices with three correlations in each were generated, the possibility that a single significant correlation could have occurred by chance was too great to warrant risking a Type I error. Hypothesis 5 was not rejected.

Table 6

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 1: "Composition 1951" by N. de Stael

Semantic differential	1	2	3	4	5	6	7		Means Art	Means Nonart
Formal:										
disorderly			N		A			orderly	4.94	2.75**
Expressive:										
still			N	A				active	4.25	2.81*
cheerful				A		N		grim	4.50	6.06**
interesting		A		N				boring	2.94	4.19*
cool	A	N						hot	1.31	2.25**
ugly			N	A				beautiful	4.00	2.56**

* p<.05
** p<.01

Figure 1. "Composition 1951"

Table 7

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 2: "X-1955" by Hans Hofmann

Semantic differential	Means	
	Art	Nonart
Formal:		
disorderly ˌ N ˌ A ˌ ˌ ˌ ˌ ˌ orderly 1 2 3 4 5 6 7	3.25	1.81**
Expressive:		
still ˌ ˌ ˌ ˌ ˌ ˌ N A ˌ active 1 2 3 4 5 6 7	6.94	6.44**

** $p < .01$

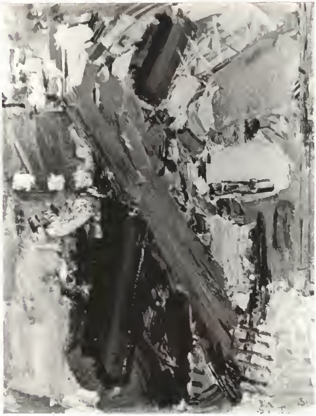

Figure 2. "X-1955"

Table 8

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 3: "Study at La Ciotat" by Nicolas de Stael

Semantic differential	Means	
	Art	Nonart
Formal:		
dark , A, N , , , , , bright 1 2 3 4 5 6 7	1.88	2.50**
disorderly , , , N , , A , , orderly 1 2 3 4 5 6 7	5.56	3.63*
Expressive:		
ugly , , N, ,A , , , beautiful 1 2 3 4 5 6 7	4.19	2.94**

* p<.05
** p<.01

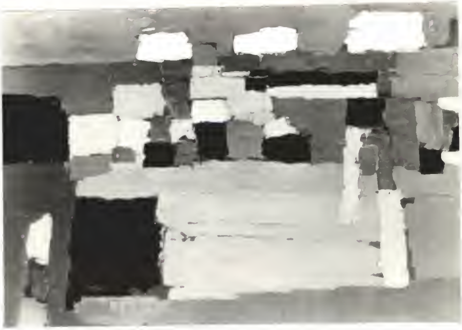

Figure 3. "Study at La Ciotat"

Table 9

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 4: "From the Plains I" by Georgia O'Keefe

Semantic differential									Means	
	1	2	3	4	5	6	7		Art	Nonart
Formal:										
disorderly					N	A		orderly	6.06	5.06*
Expressive:										
interesting		N	A					boring	2.63	1.63
cool		A	N					hot	1.94	3.38*
ugly					A	N		beautiful	4.63	5.81*

* $p < .05$

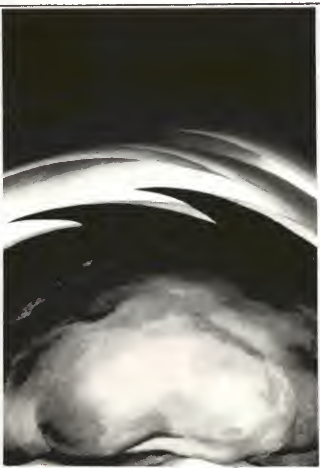

Figure 4. "From the Plains I"

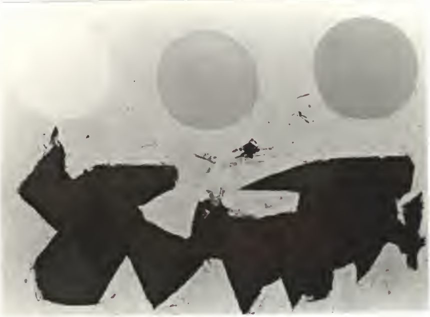

Figure 5. "Trio"

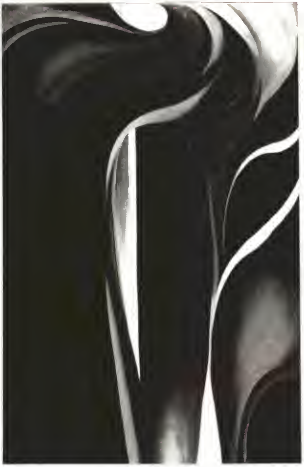

Figure 6. "Jack-in-the-Pulpit"

Table 10

Paintings for Which No Significant Differences Between Art and Nonart Students' Mean SD Ratings Were Found

Painting 5: "Trio" by Adolph Gottlieb
Painting 6: "Jack-in-the-Pulpit" by Georgia O'Keefe
Painting 7: "Les Indes Galantes" by Nicolas de Stael

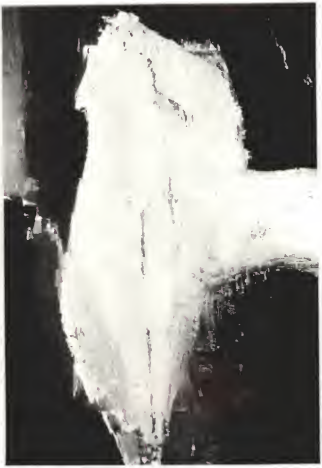

Figure 7. "Les Indes Galantes"

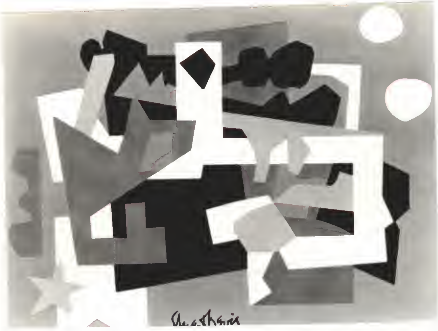

Figure 8. "Colonial Cubism"

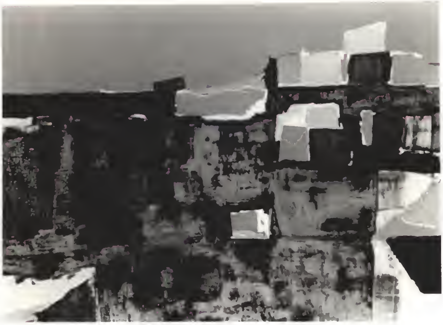

Figure 9. "Sicilian Harbor"

Table 11

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 8: "Colonial Cubism" by Stuart Davis

Semantic differential									Means	
	1	2	3	4	5	6	7		Art	Nonart
Formal:										
angular	N		A					rounded	2.56	1.25**
disorderly			N		A			orderly	4.88	3.06**

** p<.01

Table 12

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 9: "Sicilian Harbor" by Nicolas de Stael

Semantic differential									Means	
	1	2	3	4	5	6	7		Art	Nonart
Formal:										
dark			N	A				bright	4.13	2.63**
rough			N	A				smooth	3.81	2.69**
disorderly			N		A			orderly	4.56	3.38*
Expressive:										
cheerful				A	N			grim	3.75	5.19**
interesting			A	N				boring	2.88	4.38**
ugly			N		A			beautiful	5.0	3.0**

* p<.05
** p<.01

Table 13

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 10: "Black Rock" by Georgia O'Keefe

Semantic differential									Means	
									Art	Nonart
Formal:										
dark	1	2	3 N	4 A	5	6	7	bright	4.19	3.00*
rough	1	2	3	4	5	6 A	7 N	smooth	6.31	6.75*
Expressive:										
cheerful	1	2	3	4	5 A	6 N	7	grim	4.75	5.81**

* $p < .05$
** $p < .01$

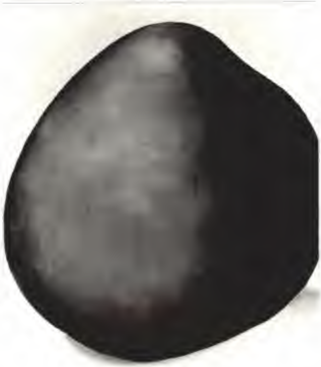

Figure 10. "Black Rock"

Table 14

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 11: "Thrust" by Adolph Gottlieb

Semantic differential	Means	
	Art	Nonart
Formal:		
dark 1 2 3 4 (N) 5 (A) 6 7 bright	5.00	4.19*
rough 1 2 3 (A) 4 (N) 5 6 7 smooth	3.00	4.25**

* $p<.05$
** $p<.01$

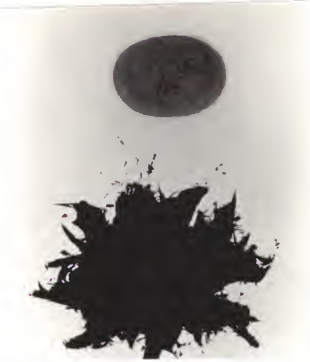

Figure 11. "Thrust"

Table 15

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 12: "Red Painting" by Ad Reinhardt

Semantic differential			Means	
			Art	Nonart
Expressive:				
interesting	1 — 2 — A 3 — 4 — 5 N — 6 — 7	boring	2.81	5.38**
ugly	1 — 2 — 3 N — 4 A — 5 — 6 — 7	beautiful	4.31	3.44*
Acceptance Rating:				
like	1 — 2 — A 3 — 4 N — 5 — 6 — 7	dislike	3.00	4.13*

* p<.05
** p<.01

Figure 12. "Red Painting"

Table 16

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 13: "Evening Star III" by G. O'Keefe

Semantic differential	Means	
	Art	Nonart
Expressive:		
still 1 2 N 3 A 4 5 6 7 active	3.69	2.88*

* p<.05

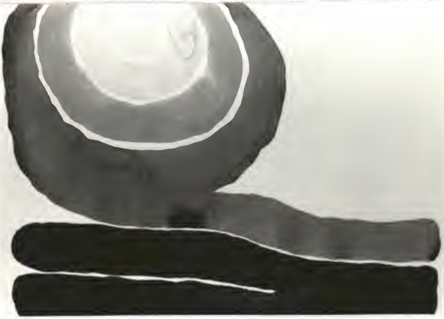

Figure 13. "Evening Star III"

Figure 14. "Homage to the Square"

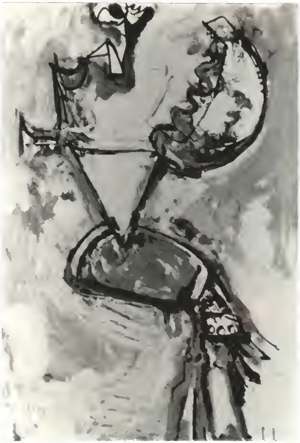

Figure 15. "Idolatress"

Table 17

Painting for Which No Significant Differences Between Art and Nonart Students' Mean SD Ratings Were Found

Painting 14: "Homage to the Square" by Josef Albers

Table 18

Significantly Different Mean SD Ratings of Art and Nonart Students for Painting 15: "Idolatress" by Hans Hofmann

Semantic differential			Means	
			Art	Nonart
Formal:				
rough	1 N 2 A 3 4 5 6 7	smooth	2.19	1.44*
disorderly	1 2 3 4 N 5 A 6 7	orderly	5.81	4.50*
complex	1 N 2 A 3 4 5 6 7	simple	3.88	1.50**
Expressive:				
cheerful	1 2 3 N 4 A 5 6 7	grim	4.69	3.38*
interesting	1 N 2 A 3 4 5 6 7	boring	2.88	1.69*

* $p<.05$
** $p<.01$

An interesting finding was that both the art and nonart students used the full range of the seven-scale semantic differentials for "pleasing-displeasing" and for "like-dislike" for each painting. This indicated that each painting received at least one rating of "very pleasing" and "very displeasing" as well as "very likeable" and "very dislikeable" by the art and nonart students alike. Ratings on "pleasing-displeasing" and "like-dislike" were highly correlated for 14 of the 15 paintings ($\underline{p}<.01$).

Hypotheses 6 and 7

Analyses of variance were used to test Hypotheses 6 and 7 to determine if significant differences between the art and nonart groups and the formal and expressive groups occurred on overall ratings of "like-dislike" and "pleasing-displeasing" for the 15 original paintings. Results revealed no significant interaction between art background and orienting task ($\underline{F}(1,60)=.56$) for ratings of "like-dislike" (Table 19). No significant differences between overall "like-dislike" ratings for the formal and expressive groups were noted ($\underline{F}(1,60)=.43$). Significant differences between the art and nonart students, however, indicated that while both the art and nonart students "liked" the 15 paintings overall, the art students "liked" the paintings significantly more ($\underline{F}(1,60)=5.76$, $p<.05$) (see Table 20).

Table 19

Analysis of Variance for Overall "Like-Dislike" Ratings for the 15 Original Paintings

Source	df	SS	MS	F
Art background	1	682.52	682.52	5.76*
Orienting task	1	50.77	50.77	.43
Interaction	1	66.02	66.02	.56NS
Error	60	7112.31	118.54	
Total	63	7911.61		

Note: Table based on the sum of ratings over 15 paintings.

* $\underline{p}<.05$

Table 20

Mean Ratings on "Like-Dislike" for 15 Original Paintings for Groups Differing in Art Background

Art Background	M
Art	3.48
Nonart	3.91

Note: Table based on mean ratings over 15 paintings.

The semantic differential ranges for "like" = 1.0 to 3.9, "dislike" = 4.1 to 7.0, neutral = 4.0

On the "pleasing-displeasing" dimension, there was no interaction between the orienting tasks and art background ($\underline{F}(1,60)=2.20$) (see Table 21). There were no significant differences between the formal and expressive groups ($\underline{F}(1,60)=.88$) or between the art and nonart groups

(_F_(1,60)=1.83). All four groups rated the 15 original paintings as "pleasing" overall.

Table 21

Analysis of Variance for Overall "Pleasing-Displeasing" Ratings for the 15 Original Paintings

Source	df	SS	MS	F
Art background	1	169.00	169.00	1.83
Orienting task	1	81.00	81.00	.88
Interaction	1	203.06	203.06	2.20NS
Error	60	5529.38	92.16	
Total	63	5982.44		

Hypothesis 6, that there is no significant difference between the expressive and formal groups on overall ratings of acceptance as measured by "like-dislike" and "pleasing-displeasing," was not rejected. The students in this study gave overall ratings of "like" and "pleasing" to the paintings, with no significant differences in ratings, regardless of whether they had attended to the formal or expressive aspects in their analyses.

Hypothesis 7, that there is no significant difference between the art and nonart groups on overall ratings of acceptance as measured by "like-dislike" and "pleasing-displeasing," was rejected. While both the art and nonart students "liked" the paintings overall, the art students "liked" them significantly more. No significant differences between art and nonart students were found for overall ratings on the "pleasing-displeasing" dimension.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

Recognition of the Paintings

Recognition of the paintings was evaluated using two instruments: a simple recognition test and a confidence weighted recognition score. The simple recognition test involved making one of two choices: had the painting been seen before or not? A test of this kind is comparable to a true-false test, where a mean score of 50% correct could be obtained by guessing. Thus, given that there were only 31 items to be discriminated, there was a danger that real differences in memory performance might be masked by error variance. By combining the simple recognition score with confidence judgments, the sensitivity of the memory test was increased. That is, it allowed for the detection of differences in the quality of subjects' memory for the pictures that the recognition test alone might have missed.

As it turned out, the art students scored significantly higher on both the confidence weighted recognition measure and the recognition test than the nonart students did. Regardless of whether the art students attended to the formal or the expressive dimensions of the paintings, recognition memory was good; out of 31 paintings, an average of only 1.5 were missed. For the nonart students, the expressive analysis group scored significantly higher than the formal analysis group on both the confidence weighted recognition measure and the recognition test. Out of 31 paintings, the formal group missed an average of 5.5, while the expressive group missed an average of 2.3. These relatively small differences in memory performance become more significant when one reviews the picture-memory studies by Standing and his colleagues (Standing, Conezio, & Haber, 1970; Standing, 1973) reported earlier; subjects were able to correctly recognize more than 90% of the 10,000 magazine pictures after a three-day delay. Because recognition memory for meaningful pictures is so remarkably accurate, the differences in memory performance found in the present study, after a delay of only 15 minutes, suggest that there also were differences in the perceived meaningfulness of the nonobjective paintings. The art students, probably as a result of their extensive training, were more sensitive viewers of art, and were able to pick up more information from the paintings than the nonart students, regardless of how their attention had been focused. It may be that the art students habitually attend to salient features of a work of art and are compelled to search for order and structure in a nonobjective work. That the art students found the paintings more coherent and meaningful, and were able to process the visual information deeply, regardless of the orienting task, is supported by their superior memory performance. Past experience with some of the paintings also may have contributed to the art students' superior memory performance.

The nonart students' perception, on the other hand, was affected by the orienting tasks. The expressive analysis group had a significantly better recognition memory for the paintings than the formal analysis group. By consistently attending to the interrelationships of the painting, as required to rate the expressive adjectives, the nonart subjects may have been able to remember the composition as an integrated unit and to perceive a meaningful context, a coherence or structure, an "aesthetic order." The nonart subjects who attended to the formal adjectives, which required more attention to particular details of the compositions, may not have been able to construct as meaningful a context for the attributes as a coherent unit, thus overloading their memories with isolated pieces of information.

The superior memory performance by the expressive group is evidence that these students may have processed the visual information at a deeper level than the formal group. Psychological research supports the contention that a deep level of cognitive processing will result in a more accurate memory performance than will a superficial level of processing. If one accepts the assumption that the expressive group's task required elaboration of the available information, or a "going beyond" what was actually seen, then one could assume that the task required a deep level of information processing. The formal group's task, on the other hand, did not demand elaboration or analysis of interrelationships to the extent that the expressive group's did, thus calling for a shallower level of processing.

One may argue that it would be impossible to describe a painting without making value judgments and personal interpretations because one perceives everything in terms of its meaning or value to oneself. However, a comparison on the adjectives used in the formal and expressive analyses reveals subtle differences in the kinds of judgments required of the subjects.

The expressive analysis asked the subject to interpret feelings that the paintings evoked in him. The subject was asked to feel the mood of the painting (cheerful-grim), the energy level (active-still), and the temperature elicited (hot-cool). The adjectives "boring-interesting" and "beautiful-ugly" were included to further encourage the subject to interpret the painting and qualify it on a deep personal level. The adjectives in the expressive analysis required the subject to make associations to properties in the paintings. For example, to rate the painting on the "cool" dimension, the subject would not be making a literal description of the temperature of the painting; instead, the subject would be making an association to the property "cool," where a predominance of the color blue may evoke a sensation of coolness.

The formal adjectives, on the other hand, did not require the subjects to analyze their feelings and make associations to the extent that the expressive adjectives did. In the formal analysis, attention was oriented more directly to the actual properties of the painting that could be observed. One attended to the outline of the shapes to determine if the painting was "angular" or "rounded"; attention to the tints or shades of the colors would determine a "dark" or "bright" rating; surface textures or shapes of the forms would qualify the painting as "rough" or "smooth." The two sets of adjectives, "disorderly-orderly" and "complex-simple," required the subjects to attend to the overall structure of the painting and its organization and did not demand the subject to describe personal associations or "go beyond" what was actually present in the work to a great extent.

Burt (1967) suggested that one must first be able to perceive "aesthetic order" or structure in a work of art in order to derive aesthetic pleasure from it. The contention that one can learn to perceive order and structure in nonobjective art is supported by the present study.

By attending to dimensions of a painting that may usually be overlooked, as characterized by the expressive analysis, one can learn to interpret and extract more meaningful information from the work and, perhaps, perceive it with more understanding and pleasure. Rose (1975) also suggested that the aesthetic experience of a painting is heightened when one allows himself to freely experience the intuitive feelings and sensations evoked by the dynamic interplay of the colors and imagery.

Acceptance for the Paintings

All four of the groups, art, nonart, formal, and expressive, gave the 15 paintings overall ratings of "pleasing" and "liking." A single significant difference in acceptance ratings was noted: the art students "liked" the paintings overall significantly more than the nonart majors. It appears, therefore, that a subject's rating of like-dislike or pleasing-displeasing for nonobjective painting was not related to whether he analyzed the paintings on formal or expressive dimensions. Because this study was designed with no control group, one cannot determine whether the act of analyzing the paintings contributed to the subjects' positive acceptance of them. It is possible that an undisciplined viewing of these paintings, much as one would do when encountering works of art in a gallery, also would result in positive acceptance ratings. Feldman (1967, 1970) suggested that this would not be the case. He contended that one must train himself to systematically analyze a painting before one judges it, otherwise one tends to make impulse judgments that preclude one from seeing the complex visual relationships inherent in the work, thus impairing good judgment. Based on Feldman's theory, one would expect that, in an undisciplined viewing, the nonart majors, with no art training, would likely judge the paintings more negatively than the art trained students.

There were no significant correlations between recognition memory and ratings on "like-dislike" and "pleasing-displeasing." That no correlations were found may be a function of limited variance that might be picked up if a very long-term memory measure were used. Intuitively, it seems that one may tend to remember for some time those paintings that were very liked or very disliked, while one may forget those that did not evoke a strong response. More research is needed to pursue this issue further.

Description of the Paintings

Both the art majors and nonart majors differed from each other in their descriptions of the paintings, regardless of whether they were describing the formal or expressive characteristics. There were significant differences on all the adjective pairs. Refer to Table 22 for mean description ratings and Table 23 for a summary of the significant differences between the art and nonart students.

Table 22

Mean Description Ratings for 15 Paintings
by Art and Nonart Students

Painting	Art		Nonart	
1 "Composition 1951" by Nicolas de Stael	angular	2.00	angular	2.06
	dark	3.81	dark	3.25
	rough	1.38	rough	1.38
	orderly	4.94	disorderly	2.75**
	simple	4.06	complex	3.13
	active	4.25	still	2.81*
	grim	4.50	grim	6.06**
	interesting	2.94	boring	4.19*
	cool	1.31	cool	2.25**
	ugly/ beautiful	4.00	ugly	2.56**
	pleasing	3.53	displeasing	4.13
	like	3.47	dislike	4.41

Table 22 -- continued

Painting	Art		Nonart	
2 "X-1955" by Hans Hofmann	angular	2.63	angular	2.44
	bright	5.81	bright	5.94
	rough	2.00	rough	2.25
	disorderly	3.25	disorderly	1.81**
	complex	2.75	complex	2.38
	active	6.94	active	6.44**
	cheerful	2.75	cheerful	2.50
	interesting	1.88	interesting	1.63
	hot	4.44	hot	5.19
	beautiful	4.75	ugly	3.80
	pleasing	3.94	pleasing	3.88
	like	3.50	like	3.84
3 "Study at La Ciotat" by Nicolas de Stael	angular	1.88	angular	1.94
	dark	3.69	dark	2.50**
	smooth	4.31	smooth	4.06
	orderly	5.56	disorderly	3.63*
	simple	4.50	simple	4.69
	still	3.56	still	3.56
	grim	4.13	grim	4.69
	interesting	3.94	boring	4.56
	cool	3.50	cool	3.06
	beautiful	4.19	ugly	2.94**
	pleasing	3.53	displeasing	4.31
	like	3.88	dislike	4.53
4 "From the Plains I" by Georgia O'Keefe	rounded	5.50	rounded	5.63
	dark	3.69	dark	3.94
	smooth	5.81	smooth	5.69
	orderly	6.06	orderly	5.06*
	simple	4.69	simple	4.19
	active	5.88	active	6.13
	grim	4.44	cheerful	3.88
	interesting	2.63	interesting	1.63*
	cool	1.94	cool	3.38*
	beautiful	4.63	beautiful	5.81*
	pleasing	2.88	pleasing	2.09
	like	3.06	like	2.34

Table 22 -- continued

Painting	Art		Nonart	
5 "Trio" by Adolph Gottlieb	angular	3.94	rounded	4.31
	bright	4.06	bright	4.44
	rough	3.81	smooth	4.31
	orderly	5.00	orderly	5.06
	simple	5.94	simple	6.00
	....		....	
	still/active	4.00	active	6.13
	cheerful	3.25	cheerful	3.88
	boring	4.38	interesting	1.63
	cool	3.88	cool	3.38
	beautiful	3.81	beautiful	5.81
	....		....	
	displeasing	4.44	displeasing	4.44
	dislike	4.50	dislike	4.91
6 "Jack-in-the-Pulpit" by Georgia O'Keefe	rounded	5.19	rounded	4.81
	dark	2.56	dark	1.94
	smooth	6.50	smooth	6.38
	orderly	5.50	orderly	5.50
	complex	3.94	complex	3.94
	....		....	
	active	5.06	active	5.38
	grim	4.25	grim	4.38
	interesting	1.81	interesting	1.31
	cool	3.44	hot	4.38
	beautiful	5.31	beautiful	5.38
	....		....	
	pleasing	2.00	pleasing	2.34
	like	2.06	like	2.41
7 "Les Indes Galantes" by Nicolas de Stael	angular	3.88	angular	3.81
	bright	4.38	dark	3.81
	rough	2.25	rough	2.50
	disorderly	3.69	disorderly	3.00
	simple	4.75	simple	4.50
	....		....	
	still	3.25	still	2.88
	grim	5.25	grim	5.19
	interesting	3.94	boring	5.13
	hot	4.69	hot	4.31
	ugly	3.13	ugly	2.88
	....		....	
	displeasing	4.84	displeasing	5.34
	dislike	4.34	dislike	5.25

Table 22 -- continued

Painting	Art		Nonart	
8 "Colonial Cubism" by Stuart Davis	angular	2.56	angular	1.25**
	bright	5.81	bright	6.06
	smooth	5.38	smooth	5.00
	orderly	4.88	disorderly	3.06**
	complex	2.69	complex	3.19
	active	5.56	active	6.31
	cheerful	2.63	cheerful	2.88
	interesting	2.25	interesting	1.88
	hot	4.75	hot	5.00
	beautiful	5.06	beautiful	4.63
	pleasing	3.16	pleasing	3.53
	like	3.19	like	3.72
9 "Sicilian Harbor" by Nicolas de Stael	angular	2.31	angular	2.00
	bright	4.13	dark	2.63**
	rough	3.81	smooth	2.69**
	orderly	4.56	disorderly	3.38*
	complex	3.56	simple	4.06
	active/still	4.00	still	3.75
	cheerful	3.75	grim	5.18**
	interesting	2.88	boring	4.38**
	cool	3.94	hot	4.56
	beautiful	5.00	ugly	3.00**
	pleasing	3.50	displeasing	4.09
	like	3.41	dislike	4.16
10 "Black Rock" by Georgia O'Keefe	rounded	6.94	rounded	6.88
	bright	4.19	dark	3.00*
	smooth	6.31	smooth	6.75*
	orderly	6.44	orderly	6.50
	simple	5.81	simple	6.56
	still	1.38	still	1.81
	grim	4.75	grim	5.81**
	boring	4.56	boring	4.56
	cool	2.75	cool	3.69
	ugly	2.94	ugly	3.13
	pleasing	3.78	pleasing	3.72
	dislike	4.03	like	3.69

Table 22 -- continued

Painting	Art		Nonart	
11 "Thrust" by Adolph Gottlieb	angular	3.88	rounded	4.13
	bright	4.19	bright	5.00*
	rough	3.00	smooth	4.25**
	orderly	4.31	orderly	4.75
	simple	5.25	simple	5.81
	still	4.69	still	5.38
	grim	4.38	grim	4.81
	interesting	3.63	interesting	2.88
	hot	5.31	hot	6.00
	ugly	3.75	ugly/ beautiful	4.00
	pleasing	3.72	displeasing	4.28
	like	3.63	dislike	4.34
12 "Red Painting" by Ad Reinhardt	angular	1.69	angular	2.00
	bright	4.19	bright	4.06
	smooth	5.81	smooth	5.38
	orderly	6.75	orderly	6.00
	simple	4.44	simple	5.56
	still	3.31	still	2.56
	grim	4.38	grim	5.00
	interesting	2.81	boring	5.38**
	hot	6.31	hot	6.56
	beautiful	4.31	ugly	3.44*
	pleasing	3.28	pleasing	3.91
	like	3.00	dislike	4.13
13 "Evening Star III" by Georgia O'Keefe	rounded	5.94	rounded	6.19
	bright	5.19	bright	5.63
	smooth	4.81	smooth	5.38
	orderly	6.06	orderly	5.19
	simple	5.94	simple	5.75
	still	3.69	still	2.88*
	cheerful	3.69	cheerful	2.88
	interesting	3.06	interesting	2.00
	hot	5.06	hot	5.00
	beautiful	4.63	beautiful	4.88
	pleasing	2.91	pleasing	2.84
	like	2.81	like	2.81

Table 22 -- continued

Painting	Art		Nonart	
14 "Homage to the Square" by Josef Albers	angular	1.19	angular	1.63
	bright	6.56	bright	6.19
	smooth	6.38	smooth	6.19
	orderly	6.94	orderly	6.38
	simple	5.75	simple	6.31
	still	3.75	still	3.06
	cheerful	3.19	cheerful	2.81
	interesting	3.19	interesting	3.81
	hot	4.56	cool	3.81
	beautiful	4.31	beautiful	4.50
	pleasing	3.16	pleasing	2.50
	like	3.44	like	3.28
15 "Idolatress" by Hans Hofmann	angular	3.88	angular	3.44
	bright	6.31	bright	6.44
	rough	2.19	rough	1.44*
	orderly	5.81	orderly	4.50*
	complex	3.88	complex	1.50**
	active	6.75	active	6.81
	grim	4.69	cheerful	3.38*
	interesting	2.88	interesting	1.69*
	hot	6.06	hot	6.13
	ugly	3.81	ugly	3.63
	displeasing	4.38	displeasing	4.88
	like	3.84	dislike	4.88

* $p<.05$

** $p<.01$

Table 23

Summary of Significantly Different Ratings Between Art and Nonart Students Over 15 Paintings

Adjective Pairs	Number of Significant Differences
Formal:	
angular-rounded	1
dark-bright	4
rough-smooth	4
orderly-disorderly	7
simple-complex	1
Expressive:	
active-still	3
cheerful-grim	4
interesting-boring	5
cool-hot	2
beautiful-ugly	5

The most interesting difference between the art and nonart students' formal descriptions was seen on the "orderly-disorderly" dimension. The nonart majors clearly perceived disorder in the paintings more often than the art majors. Only Paintings 2 and 7 were rated "slightly disorderly" by the art majors (weak ratings of 3.3 and 3.7 consecutively, where 4.0 was neutral). These are the only two paintings that appear to be rather spontaneously executed with bold brushstrokes in the "action painting" genre. Perhaps the use of the bold "splashy" technique of the paint application in these two paintings contributed to the art students' classification of them as "slightly disorderly." The other 13 paintings were executed in a more controlled and deliberate manner and were rated on the "orderly" end of the scale by the art students.

The nonart students also rated Paintings 2 and 7 as "disorderly," but their ratings indicated that they perceived these paintings as more strongly disorderly than the art majors did (ratings of 1.8 and 3.0 consecutively, where 4.0 was neutral). In addition, Paintings 1, 3, 8, and 9 were ranked "slightly disorderly" by the nonart majors. These last four paintings are designed with no obvious center of interest and are composed of rather geometrical forms that fill the entire picture plane. This researcher perceives a very definite order or structure in these four paintings, but perhaps the nonart students interpreted the forms as being random or accidental. When the forms overlap or blend together, the coherence or structure may be obscured for the nonart students, resulting in the perception of incongruence or disorder. Perhaps the nonart students simply needed more than the 45 second time limit allowed in order to perceive order in these paintings. It is possible also that the nonart students have a more limited definition of what constitutes "order" in a nonobjective painting, regardless of the amount of viewing time. Further research is needed to pursue this possibility.

It should be noted also that the nonart students tended to make more recognition mistakes for the six paintings that they classified as "disorderly" than for other paintings. The art students also made the greatest number of recognition errors on Painting 2, which they categorized as "disorderly". See Table 24 for mean recognition errors as related to the disorderly ratings. These findings support the research that suggests one has a better memory for stimuli perceived as having structure and coherence than for stimuli perceived as unstructured or arbitrary.

Table 24

Mean Recognition Errors and "Disorderly" Ratings for 15 Paintings by Art and Nonart Students

Painting	Recognition Errors and Disorderly Ratings	
	Art	Nonart
1	3	5 (disorderly)
2	5 (disorderly)	5 (disorderly)
3	4	4 (disorderly)
4	0	3
5	0	4
6	0	4
7	0 (disorderly)	5 (disorderly)
8	0	4 (disorderly)
9	1	8 (disorderly)
10	1	1
11	0	2
12	0	2
13	0	1
14	3	7
15	1	5

Another interesting difference between the art and nonart students' perception of the formal elements was seen in Paintings 5 and 11 by Adolph Gottlieb. These two paintings are composed in a similar manner: single, dark, amorphous shapes fill the lower half of the paintings, and clearly defined spheres are in the top sections. The nonart students rated these two paintings as "rounded," whereas the art students rated them as "angular." That the nonart students attended to the spheres and the art students to the dark shapes is further emphasized by the ratings on the "rough-smooth" dimension: The art subjects rated the paintings as "rough," the nonart subjects rated them as "smooth." The differences, however, were reliable only for Painting 11. The point here is that differences emerged in what was attended to within some paintings, as a function of one's background in art.

Differences between art and nonart students were also observed on judgments of the expressive dimensions. The "interesting-boring" and "beautiful-ugly" dimensions represented the greatest number of significant differences between the art and nonart students' descriptions (see Table 23). The art students tended to rate the paintings more often as "interesting" and "beautiful" than the nonart students did. That the art students perceived the paintings as more coherent and meaningful would help to explain the ratings on these dimensions. This point is further supported by the finding reported earlier: the art majors "liked" the paintings significantly more than the nonart majors.

The art students did not rate any single painting as "boring, ugly, and disorderly." However, such was not the case for the nonart students: the paintings they rated "boring" also were rated "ugly" (Paintings 1, 2, 7, 9, 10, and 12). Four of these six "boring" paintings were classified as "disorderly." Perhaps when one is able to find "aesthetic order" or structure in a nonobjective painting, one will also more likely rate it as interesting or beautiful, because it becomes personally meaningful, as Burt (1967) suggested.

Summary

This study helped to confirm that art students perceive works of art differently than nonart students do. That the art students in this study perceived the paintings as more meaningful and coherent than the nonart students is supported by several findings: the art students liked the paintings more and rated them as more orderly, more interesting, and more beautiful. In addition, the superior memory performance of the art students suggests that they were able to process the information in the paintings more deeply.

It appears that, if one has a strong background in art, perception of nonobjective paintings is not significantly affected by focusing tasks. Presumably the art students were sophisticated and sensitive viewers of art and were able to process the information deeply, regardless of the task. On the other hand, this study suggests that, for students with little art background, perception of paintings can be manipulated by focusing and orienting attention to particular dimensions of the paintings. The nonart students who attended to expressive dimensions had a superior memory for the paintings, suggesting that they had processed the visual information at a deeper level and were able to qualitatively perceive more meaning and coherence. In addition, there is evidence to suggest that if one perceives order and structure in a nonobjective painting, one will also more likely derive aesthetic pleasure from it.

Results of this study support the claim that understanding and retention of visual material is, in large part, a function of how one analyzes and elaborates the available information at acquisition.

Educational Implications

One of the key goals in art education is to enable students to respond sensitively to visual form by helping them to increase the amount of perceived visual information inherent in the work of art. This study suggests that art educators can affect their students' perceptions of art works by focusing attention on particular dimensions of the works. What students perceive from a work of art, particularly nonobjective art, appears to be a function of how they attend to it. This study suggests that attention should involve more than a passive description of the formal elements. By encouraging students to interact with the work by expressing intuitive feelings, associations, and ideas evoked by it, the teacher may enable the students to perceive the work more meaningfully. The pervasive lecture approach to presenting art works, where teachers regard art appreciation as a passive mode of learning, may be depriving students of the opportunity to develop the aesthetic skills needed to organize and interpret the works of art. Being told that a nonobjective painting is "cool" does not constitute the kind of knowledge that grows out of the student's own perception by feeling "coolness" in the painting in order to perceive "coolness." This does not imply that information communicated by teachers is harmful or bad, but that simply telling students what a particular work of art accomplishes does not necessarily lead students to perceive and experience the work for themselves. Language can function as a catalyst for interpreting aesthetic experience, and when used by students it can enable the teacher to determine if the students are able to see and feel the work of art being studied. This interaction among the students and teacher may encourage a more active and meaningful involvement in the interpretation of the work of art.

This study tends to give added credence to the expressive theory of art which regards the aesthetic experience as involving "sensuous feeling" overtones and "emotive meanings," rather than literal or logical interpretations of form (Tsugawa, 1968; Madenfort, 1972). Expressivists contend that by savoring the feelings aroused by a work of art, one experiences the embedded meanings that make the perception of the work a rich and satisfying experience. Duke Madenfort (1972), an advocate of the expressive approach to art, suggests aesthetic education should encourage, nurture, and allow for "greater openness and freedom of sensuous response, so important for the spontaneity of immediacy." David Ecker (1967) and Edmund Feldman (1967, 1970) have both outlined approaches to art appreciation which incorporate expressive dimensions.

This study confirms the contention that art students and nonart students perceive works of art differently. While the typical lecture format, using a formalist orientation for describing paintings, may suffice if teachers are dealing with aesthetically sophisticated art students, this orientation does not seem to allow the student with little art background to fully perceive meaning and coherence in nonobjective paintings. The findings in this study suggest that nonart students may need additional guidance in order to perceive order or structure in nonobjective paintings. On the other hand, the art student, being a more sensitized viewer of art, seems intuitively compelled to pick up more information from the paintings.

Though preferences for the paintings were not measured per se, this study suggests that a determinant for liking and valuing a nonobjective painting is a function of the quality of the information one is able to perceive and how one interprets that information. Implied here is the idea that sensitive observers perceive qualitatively different aspects of paintings and are, therefore, not evaluating the same aesthetic experience as the less sophisticated viewers. That the art students liked the paintings more than the nonart students suggests that their experience with the paintings was richer and more meaningful. This study tends to support the contention that, with guidance, one can learn to apprehend the salient information that will lead to increased understanding and appreciation of a work of art. That nonobjective art can be understood and perceived as coherent and meaningful, lends credence to nonobjective art as a legitimate art style worthy of admiration.

The aesthetic literature suggests that one needs a frame of reference for nonobjective art before one can fully appreciate and understand this particular art style. Being able to remember what a particular work of art looks like may be a basic step in building a knowledge base or background of funded visual experiences which would enable one to develop an aesthetic frame of reference. Results of this study suggest that a person will have a better memory for nonobjective paintings when he is able to perceive it as meaningful. In addition, if one attends to and interprets the ideas and feelings communicated by the work, one will more likely perceive the coherence and structure and, consequently, remember the salient attributes of the work.

This study has implications for psychological research on memory and perception. It gives additional support to studies showing positive effects for deep vs. shallow processing on memory performance. It also underscores the cognitivist point that what one perceives is not simply a function of the stimulus, but is constrained further by the skills brought to the perceptual task and by what one is directed to look for.

Suggestions for Future Research

More research is needed to determine specific ways in which training prepares one to perceive aesthetic dimensions of works of art. In particular, while results of the present study suggest differences in art and nonart students' perception of coherence and orderliness, it would be useful to pursue the issue further. It remains a possibility that the differences are not perceptual but, instead, reflect differences in how "orderliness" is defined by the two groups. Because differences also emerged in what was attended to within some paintings, as a function of one's art background, additional research in this area may be called for.

A study, similar to the present one, could be conducted to determine if acceptance for the paintings and very long-term memory may be correlated. The methodology used here could be extended to other painting styles as well as to variations in the adjective pairs, viewing time, and delay time.

Because this study is limited to college students, it would be worthwhile to determine whether the results are generalizable to other age groups and populations.

APPENDICES

APPENDIX A

INFORMATION SHEET

Code Number ____________________

1. Sex: _____ Male _____ Female

2. Do you have a major in art? _____ Yes
   _____ No List your major __________

3. List any art or art history courses you have taken while in high school or college, including private lessons:
   (high school) ______________________________________
   (college) ______________________________________
   ____

4. Check any of these media that you work in, either as a hobby or vocation:
   _____ drawing
   _____ painting
   _____ sculpture
   _____ clay or ceramics (other than with molds)
   _____ printmaking
   _____ weaving
   _____ photography

5. How important is art to you? (Check statement that most closely applies.)
   _____ A. Very important: I purchase art books or magazines and/or regularly go out of my way to visit art galleries or attend art shows.
   _____ B. I enjoy art but rarely purchase art books or magazines and/or only occasionally visit art galleries or art shows.
   _____ C. I am generally indifferent to art and would not normally choose to visit an art gallery or go to an art show.
   _____ D. I dislike the visual arts.

6. If you had the money, could you imagine yourself spending $50 or more for an abstract work of art?
   _____ Yes _____ No _____ Possibly

7. Are you color blind? _____ Yes _____No

APPENDIX B

EXAMPLE OF FORMAL SEMANTIC DIFFERENTIAL

angular 1 2 3 4 5 6 7 rounded

dark 1 2 3 4 5 6 7 bright

rough 1 2 3 4 5 6 7 smooth

disorderly 1 2 3 4 5 6 7 orderly

complex 1 2 3 4 5 6 7 simple

APPENDIX C

EXAMPLE OF EXPRESSIVE SEMANTIC DIFFERENTIAL

---

still	1	2	3	4	5	6	7	active
cheerful	1	2	3	4	5	6	7	grim
boring	1	2	3	4	5	6	7	interesting
cool	1	2	3	4	5	6	7	hot
ugly	1	2	3	4	5	6	7	beautiful

APPENDIX D

SCENARIO OF INSTRUCTIONS

Upon entering the experimental room each subject was given a booklet and instructed to fill out the information sheet and enter any identifying code number at the top of the page. The following instructions were read by the experimenter:

> Please open your booklet and count your pages to make sure you have 15, one page for each painting that you will be seeing. You will notice that each page has five sets of adjectives. Each set consists of two words opposite in meaning with seven scales marked between each one. In front of you on the table you will see a paper explaining the meaning of each of the seven scales. (See Appendix E for example of this explanation sheet.) On this paper the adjectives are "fast" at one end and "slow" at the other end. I realize that none of you has these adjectives in your booklet, I am only using them here as an example. After you look carefully at the slide, you would decide whether you think "fast" best describes the painting or if "slow" would be a better choice. Now you must decide upon the degree of "fastness" or "slowness" of the painting. If you feel the painting is "very slow" you would circle the

number six. Perhaps you feel the painting is only "slightly slow", in which case you would circle the number five. On the other hand, if you had decided that "fast" is a more appropriate description of the painting you will be dealing with the numbers one through three. By circling the number one, you would be indicating "very fast," a number two circled would mean "quite fast" and number three "only slightly fast." If you feel the painting is equally fast and slow, or neither fast nor slow, you would circle the four. The number four is in the middle position and can indicate neutrality or no opinion. Any questions concerning the meaning of the seven numbers? You may refer to this sheet at any time if you should forget the significance of the numbers.

You will be viewing 15 different slides of abstract paintings. For each painting that you see, you will decide how it relates to the adjectives I have selected. Look at the adjectives you will be using; are there any questions about the meaning of any of them? Remember, I am only interested in your own personal judgment and what the paintings mean to you, not what you think experts or anyone else would think. Do not try to remember how you rated the adjectives from one painting to the next, make each item a separate and independent judgment. Some or all of the paintings may not appeal to you, but I would like for you to look at each painting carefully before you begin ranking. Do not worry or puzzle over individual items. It

> is your first impression, the immediate feelings about the paintings, that I want. Even though you will be working at a fairly rapid pace, please do not be careless, because I want your true impressions. You will see each painting for 45 seconds. During that time you will rank the painting. The slide will then be removed and the screen will be blank for five seconds. While the screen is blank you will flip your page and prepare to see the next slide. When all 15 slides have been shown, there will be a 15 minute break while I prepare the last set of slides. Please do not talk to your neighbor or make any comments during the presentation. We will start now.

The lights were dimmed and the slides were shown, taking approximately 13 minutes. After the presentation the booklets were collected. The subjects were asked to remain in the room during the 15 minute break, and read the magazines and newspapers provided or talk among themselves, provided they did not make any comments about the experiment. The experimenter surreptitiously removed the 15 slides and mixed them together in a predetermined random order with the 16 distracter slides and placed them in the carousel for the second viewing. New booklets were passed out (identical for each person, see Appendix F), and the instructions for the second part were read as follows:

> Please enter the same code number you used before on the top of your page, and then count your sheets to make sure you have 31. You will be seeing 31 slides this time.

Some of the slides you saw before in the first presentation today and some will be new slides that I included. Because some of the paintings are extremely similar to each other, you must look very closely to determine if it is a new item or if you have seen it before. Please remember that the question, "Is this a new item or have you seen it before?" refers to the 15 paintings you saw previously, not to paintings you may have once seen in a book or museum. If you recognize the painting as one of the ones you saw in my first presentation, you would check the box "seen before." If you think the painting is not one of the original 15 paintings you saw before, you would check "new item." The next question asks how certain you are that your answer is correct. In the last part, you will rank the paintings on whether or not you find them pleasing and how well you like them. "Pleasing" and "like" are not necessarily synonymous adjectives. You may have seen a picture that you find pleasing in some way but you do not particularly like it or it does not appeal to your personal taste. On the other hand, you may find a painting has displeasing characteristics but you may like the overall effect. To use a concrete example, I can think of a painting I have seen of two boxers in the ring with blood and sweat on their agonized faces. To me, the subject matter is displeasing, but I like the overall effect of how the artist depicted the mood of the painting. On the other hand, I

> have seen some calendar art of stillife paintings or of sailboats in the sunset that are very pleasant, but I do not particularly like the picture as a painting because it seems trite and commonplace. I have also seen paintings that are very pleasing to look at and that I like as well.
>
> Again, remember it is your own opinion I want, not what you think you should like. Please refer again to the paper on the table explaining the significance of the seven scales. You will see each painting for only 15 seconds this time and there will be a five second interval between each slide for you to flip the page and prepare to see the next slide. Please do not talk to your neighbor or make any comments during the presentation. We will start now.

Following the presentation, the booklets were collected and the subjects were paid $2 for their participation. The entire experiment took approximately 50 minutes, including instructions.

APPENDIX E

EXAMPLE OF EXPLANATION SHEET FOR SEMANTIC DIFFERENTIAL RANKINGS

				(neutral)				
FAST	1	2	3	4	5	6	7	SLOW
	(very)	(quite)	(slightly)		(slightly)	(quite)	(very)	

APPENDIX F

EXAMPLE OF PART II: RECOGNITION TASK AND ACCEPTANCE RATINGS

Is this painting a new item or have you seen it before?

_____ new item

_____ seen before

How certain are you that your answer is correct?

1	2	3
uncertain	fairly sure	positive

Rank this painting as you feel about it:

pleasing 1 2 3 4 5 6 7 displeasing

dislike 1 2 3 4 5 6 7 like

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BIOGRAPHICAL SKETCH

Catherine Totten Battle was born in Jackson, Mississippi in 1947, but has lived in Florida, since 1954. She received her B.S. in art education in 1970 and her M.Ed. in Curriculum and Instruction in 1975 from the University of Florida.

Cathy taught art to kindergarten through sixth grade children in Orange Park, Florida, for five years, after which she assumed responsibility for teaching all art education curriculum and methods courses at the University of North Florida in Jacksonville as an adjunct instructor from September 1975 to August 1976.

Throughout her doctoral program at the University of Florida, Cathy was a graduate assistant in art education, teaching courses for elementary education and art education majors. She also supervised student teachers and taught courses in crafts and metalworking.

Cathy has been married to William Joseph Battle, also a graduate of the University of Florida, since 1970.

Her art work has been displayed and shown in major Florida art shows and in private galleries. Plans for her future remain tentative, but Cathy's professional goals include continuation of research and teaching.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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This dissertation was submitted to the Graduate Faculty of the Division of Curriculum and Instruction in the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Dean for Graduate Studies and Research